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Please return to
ROSEMARY GLANVILLE
MARU: Environmental Design
Polytechnic of North London
Holloway Road, London N7 8DB

NHS BUSINESS CASE GUIDE

FOR CAPITAL INVESTMENTS

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SECTION 1

Preface

The preparation of a Business Case is the process that supports NHS Trust submissions for the funding of new capital projects. Although use of the term Business Case to describe the document that supports a proposal for capital investment in the NHS is new, much of what it entails is not a new concept. Underlying the presentation of a Business Case is the sound framework for option appraisal that has been required in the NHS for some time.

This new guide highlights the same structured and disciplined approach to option appraisal which was previously set out in *Option Appraisal - A Guide for the National Health Service*. The essential principles set out in this guidance apply equally to investments in buildings, machinery and IT, including those that involve the use of private finance. The process described in this guide reflects the important reforms that have taken place in the NHS following the NHS and Community Care Act (1990). However, the guidance is equally applicable to DMUs and Regions. It aims not only to give practical guidance on the technical considerations of the full capital investment appraisal process, but also to provide a framework for establishing management arrangements to ensure that the benefits of every capital investment are identified, evaluated and realised.

How to use this Guide

This document forms the first section of the NHS Business Case Guide. It is a summary of the main aspects of the Business Case process that need to be considered when planning for capital investment. This preliminary section provides **Chief Executives** and **senior managers** with an overview of the process and a summary of some of the key issues for NHS Trusts which are contemplating a capital investment.

The remainder of the guide is a practitioner's manual. It describes how to undertake each of the steps involved in developing a Business Case for a capital investment proposal and is designed for use by **business planners** and other managers involved in the preparation of a Business case.

This guide is the first part of the CAPRICODE Health Building Procedures manual. CAPRICODE is the procedural framework that sets out the mandatory requirements for the processing of health building schemes. The Business Case is Part I of CAPRICODE, leading to approval for the implementation of capital projects. The approach set out in this guide is also linked to NHS estate management practices to be found in ESTATECODE. These relationships are summarised in Figure 1 overleaf.

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FIGURE 1 : THE LINK BETWEEN THE BUSINESS CASE GUIDE AND OTHER CAPRICODE PROCEDURES WITH ESTATECODE

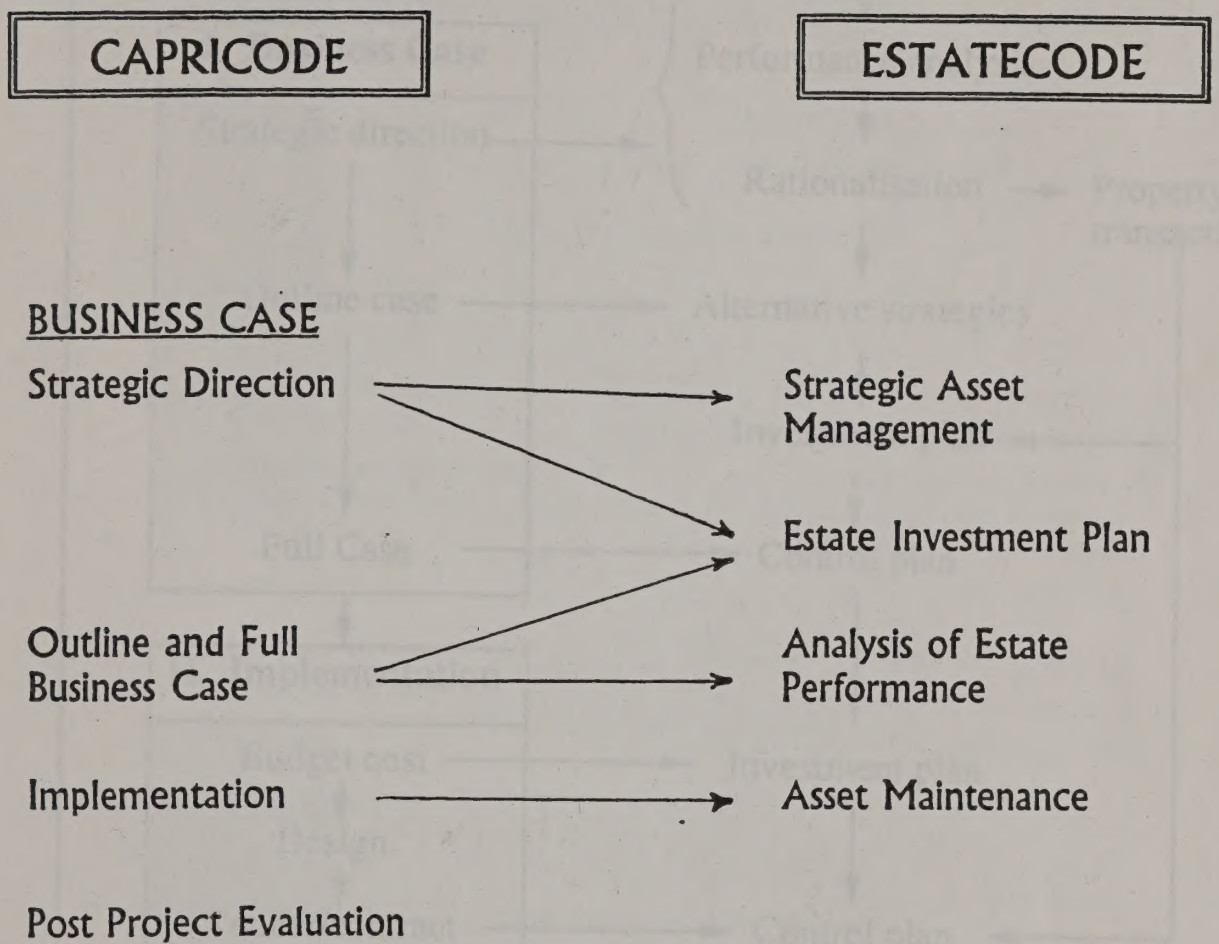

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Figure 1 : The link between CAPRICODE and ESTATECODE

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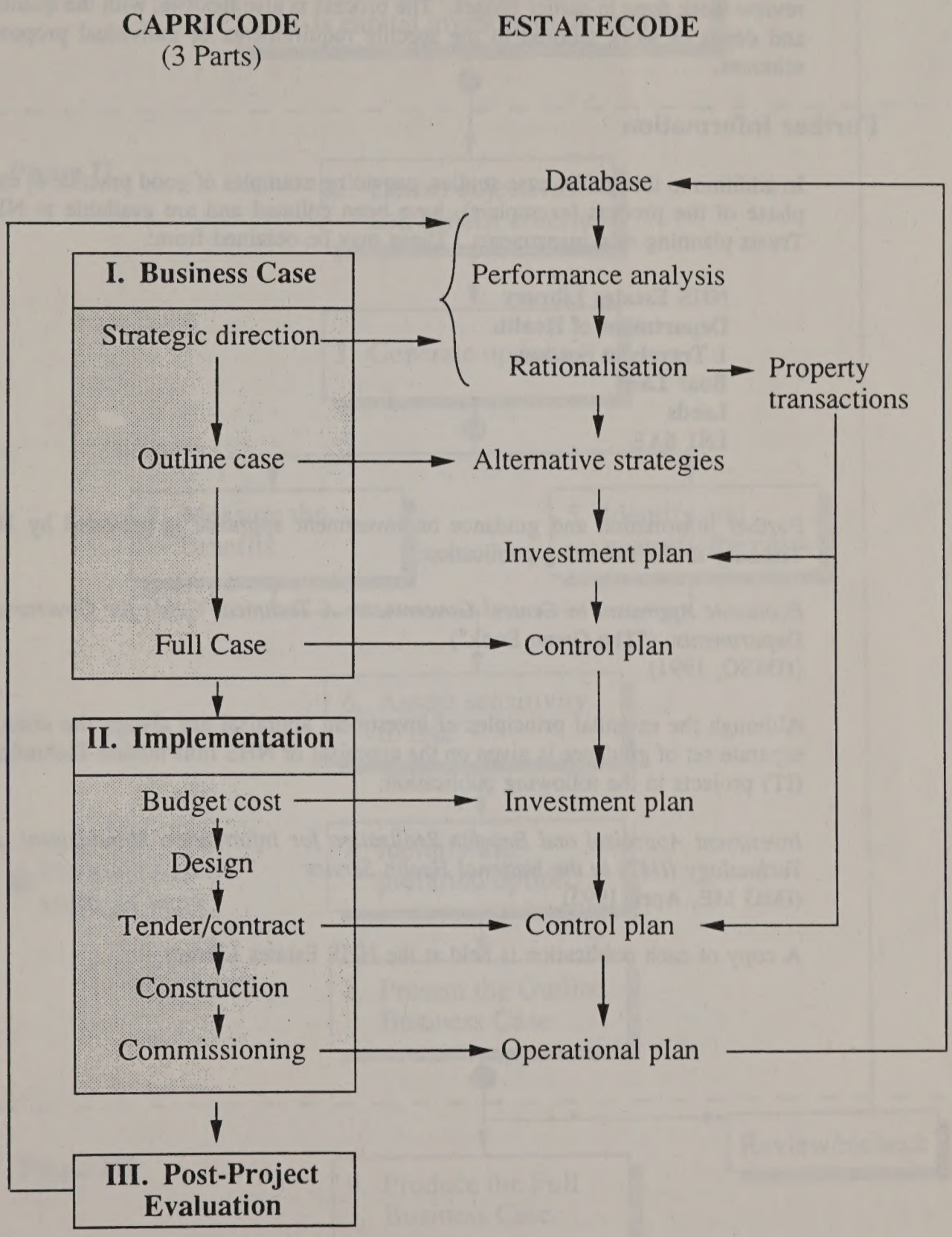

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The Business Case process is divided into three phases, involving setting strategic direction and producing outline and full business cases. The three phases entail nine steps, which are each presented sequentially in this guide. At the end of each of these sections is a **checklist** listing the main activities within each step of the process. The process is **iterative**, and it is important to note that as the Business Case is developed, it will be necessary to go back to previous steps in order to review work done in earlier phases. The process is also **flexible**, with the quantity and depth of work tailored to the specific requirements of individual proposed schemes.

Further information

In addition to this guide, case studies, providing examples of good practice at each phase of the process (exemplars), have been collated and are available to NHS Trusts planning new investments. These may be obtained from:

NHS Estates Library
Department of Health
1 Trevelyan Square
Boar Lane
Leeds
LS1 6AE

Further information and guidance on investment appraisal is provided by HM Treasury in the following publication:

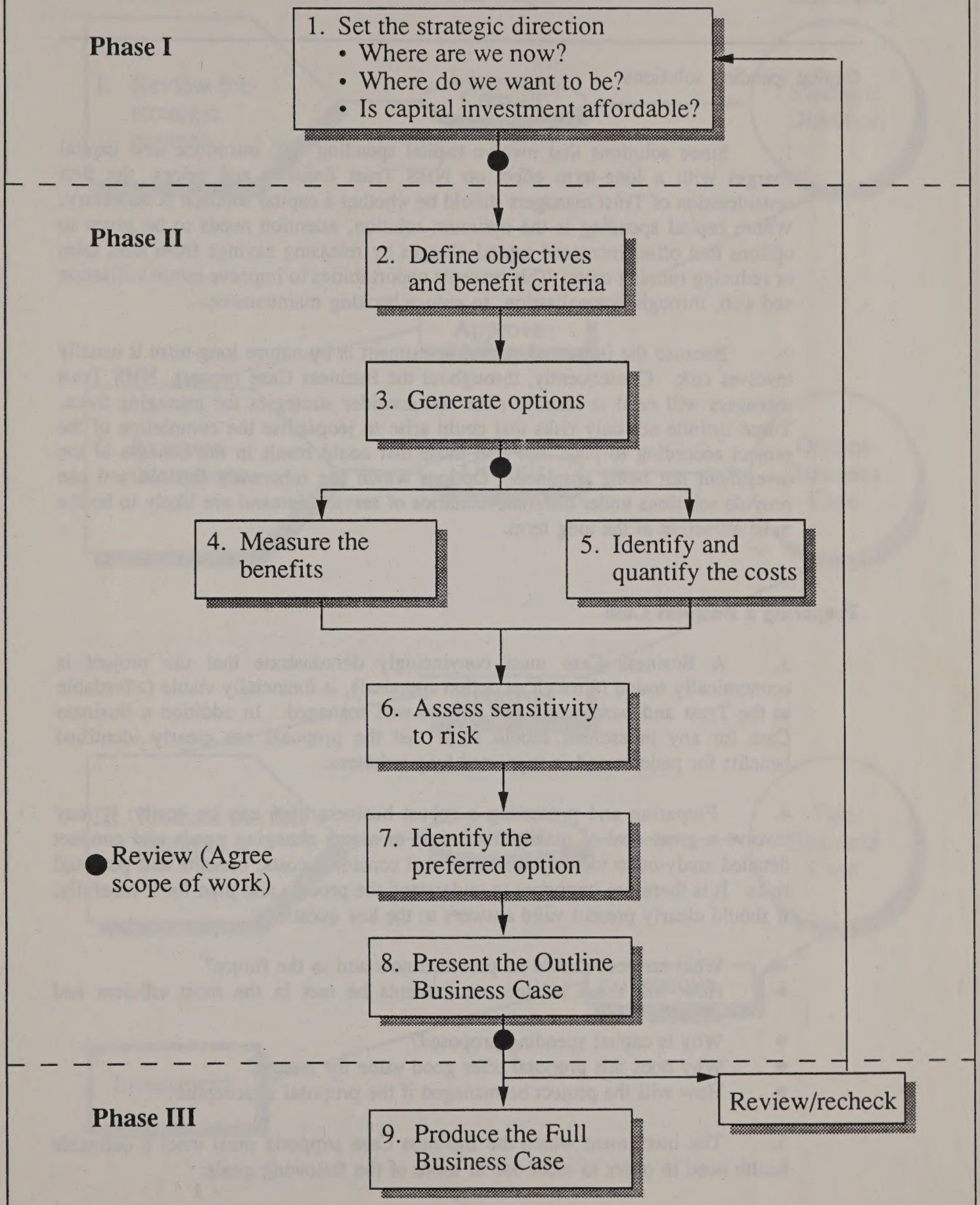
Economic Appraisal in Central Government: A Technical Guide for Government Departments ("The Green Book")
(HMSO, 1991)

Although the essential principles of investment appraisal are always the same, a separate set of guidance is given on the appraisal of NHS Information Technology (IT) projects in the following publication:

Investment Appraisal and Benefits Realisation for Information Management and Technology (IMT) in the National Health Service
(IMG ME, April 1993)

A copy of each publication is held at the NHS Estates Library.

Figure 2 : Steps in the Business Case Process



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Planning for Capital Investment

Capital spending solutions

1. Since solutions that involve capital spending will introduce new capital charges with a long-term effect on NHS Trust finances and prices, the first consideration of Trust managers should be whether a capital solution is necessary. Where capital spending is the optimum solution, attention needs to be given to options that offset increased capital charges by releasing savings from land sales or reducing running costs. This presents opportunities to improve estate utilisation and also, through rationalisation, to reduce backlog maintenance.

2. Because the impact of capital investment is by nature long-term it usually involves risk. Consequently, throughout the Business Case process, NHS Trust managers will need to identify risks and consider strategies for managing them. These include not only risks that could arise to jeopardise the completion of the project according to plan, but also those that could result in the benefits of the investment not being obtained. Options which are inherently flexible and can provide solutions under different scenarios of service demand are likely to be the most attractive in the long term.

Preparing a Business Case

3. A Business Case must convincingly demonstrate that the project is economically sound (through an option appraisal), is financially viable (affordable to the Trust and purchasers) and will be well managed. In addition a Business Case for any investment should show that the proposal has clearly identified benefits for patients and is supported by purchasers.

4. Preparing and presenting a robust business case can be costly: it may involve a great deal of management time to assess changing needs and conduct detailed analyses to identify a solution that considers costs, benefits and potential risks. It is therefore important to understand the process and plan for it carefully. It should clearly present valid answers to the key questions:

- What services should be provided now and in the future?
- How will these service requirements be met in the most efficient and effective way?
- Why is capital spending proposed?
- Why does this proposal offer good value for money?
- How will the project be managed if the proposal is accepted?

5. The investment which the Business Case supports must meet a definable health need in order to meet one or more of the following goals:

Figure 3 : The Business Case Process

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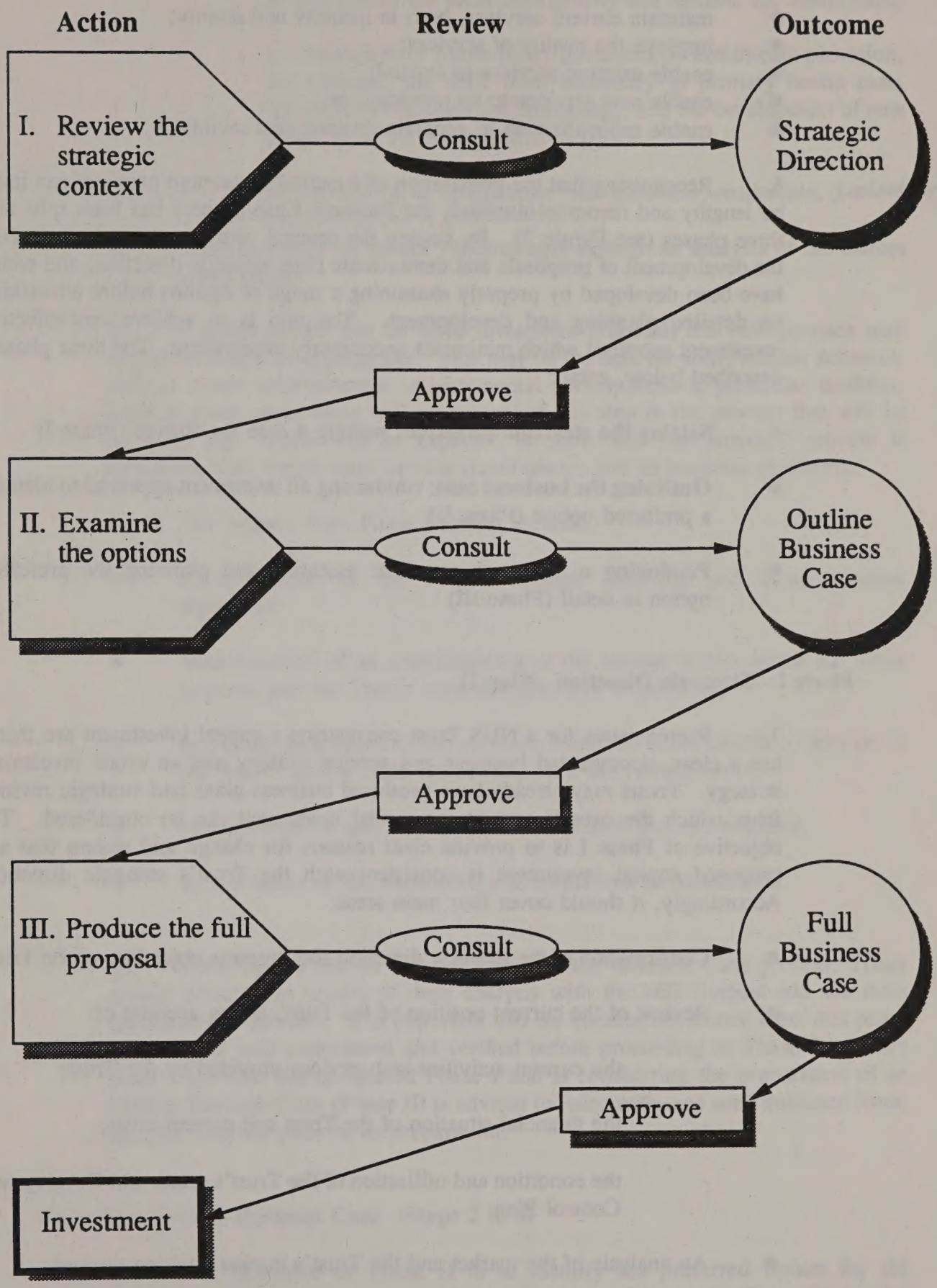

- maintain current services, both in quantity and quality;
- improve the quality of services;
- enable existing services to expand;
- enable new services to be provided; or,
- enable rationalisation to generate revenue cost savings.

6. Recognising that the preparation of a capital investment proposal can itself be lengthy and resource intensive, the Business Case process has been split into three phases (see Figure 3). By staging the process, work is channelled towards the development of proposals that demonstrate clear strategic direction, and which have been developed by properly examining a range of options before embarking on detailed planning and development. The aim is to achieve cost-effective investment appraisal which minimises unnecessary expenditure. The three phases, described below, entail:

- **Setting the strategic direction**: making a case for change (Phase I)

- **Outlining the business case**: conducting an investment appraisal to identify a preferred option (Phase II)

- **Producing a full business case**: assessing and planning the preferred option in detail (Phase III)

Phase I - Strategic Direction (Step 1)

7. Prerequisites for a NHS Trust considering a capital investment are that it has a clear, documented business and service strategy and an estate investment strategy. Trusts may already have produced business plans and strategic reviews from which the overall context for capital investment can be considered. The objective of Phase I is to provide clear reasons for change and ensure that any proposed capital investment is consistent with the Trust's strategic direction. Accordingly, it should cover four main areas:

- Confirmation of the strategic direction and business objectives of the Trust.

- Review of the current position of the Trust, taking account of:

  - the current activities and services provided by the Trust;

  - the financial situation of the Trust and current costs;

  - the condition and utilisation of the Trust's estate and Development Control Plan.

- An analysis of the market and the Trust's market position through:

- a review of purchasers' strategic intentions and plans, including an analysis of the local demography and demand for health care;

- an assessment of future likely influences on health-care provision, for example, the shift from secondary to primary health care, advances in medicine and technology, and the development of new practices in the management of patients;

- an exploration of competitors' strengths and weaknesses. including future plans & potential

- Documentation of service requirements through an analysis of the factors given above.

8. It is recognised that for some investment proposals this full approach may not be necessary or appropriate. This may be the case for some smaller schemes, such as minor refurbishment or incremental developments to particular facilities. Even in these cases there will be aspects of this step in the process that will be relevant, and Trusts will be expected to show that the proposed scheme is consistent with longer-term service requirements and its business objectives.

9. The outputs from Phase I should include:

- documentation of the Trust's strategic direction and clear business objectives;

- demonstration of an understanding of the market within which the Trust operates and the Trust's own strengths and weaknesses;

- an outline description of the services which the Trust intends to provide in the future, noting areas for development and retrenchment;

- identification of specific service developments that are required.

- an indication of the affordability of investment to purchasers

10. Upon completion of this first phase of the Business Case process, Trusts should discuss the results of their analysis with the ME Outpost and the main purchasers of services. It is important that the conclusions drawn from this phase of work are well understood and verified before proceeding to Phase II. Every NHS Trust that has completed Phase I and is considering the preparation of an Outline Business Case (Phase II) is advised to liaise with, and seek guidance from, the ME Outpost prior to its preparation.

Phase II - Outline Business Case (Steps 2 to 8)

11. The objective of Phase II is to identify the preferred option for the investment, through an objective investment appraisal process. This will involve the following activities:

- identification of the objectives of the investment and their link to the Trust's strategy and overall business objectives;

- identification of the benefits expected as a result of the planned investment;

- identification of any constraints on the means of achieving the objectives of the investment;

- generation of a full list of options for meeting the objectives of the investment and a shortlist sifted on the basis of agreed criteria;

- an assessment of the costs and benefits of each short-listed option;

- a risk analysis, and an assessment of the impact of the investment on the Trust's prices; and,

- identification of the preferred option.
- identification of the cash flow resulting from the preferred option as indicated in

12. It is expected that the amount of work to produce an outline case will vary from one proposal to another. NHS Trusts and ME Outposts will have to agree how much detailed work is required for the Trust to present a valid choice of solution. The effort expended in Phase II should reflect the likely size of the scheme and the complexity of the choice. It is particularly important that tenable options are not ruled out too early, before proper consideration has been given to them. Therefore, although factors which are critical to the choice will need to be methodically appraised, other factors may not need to be analysed so closely.

13. The outputs from Phase II are an Outline Business Case, covering all aspects of the work carried out in this phase, but with a focus on:

- the objectives of the investment;

- the short-listed options and the costs, benefits and risks related to each option;

- the preferred option (in outline) and the impact on the Trust's position in the market and ability to meet financial and service objectives.

14. Outline Business Cases are to be presented to the ME Outpost for approval and discussed with main purchasers before proceeding to the next phase. Following approval, Outposts should discuss with Trusts the scope of work that will have to be undertaken to produce a Full Business Case.

Phase III - Full Business Case (Step 9)

15. Once the Outline Business Case has been approved, the investment appraisal will proceed to Phase III, production of the Full Business Case. Normally Trusts will proceed to Phase III only if capital funds have been identified and purchaser support obtained. Phase III presents an opportunity to validate the work in Phases I and II, but primarily to develop the preferred option. This

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- a review of Phase I, including more precise quantification of future service requirements;
- a review of Phase II, including validation of the main elements of the investment appraisal carried out for the Outline Business Case;
- professional certification by the Director of Finance and endorsement by the Trust Chief Executive, or their equivalents for other NHS bodies.
- detailed development of the preferred option including the preparation of a Development Control Plan
- formulation of plans for project monitoring and post-project evaluation (providing a link to Part III of CAPRICODE).

16. The output of Phase III is an updated and more precise assessment of the strategic context and an expanded Outline Business Case which will constitute the Full Business Case. This will clearly present the arguments for the planned investment and demonstrate that the Trust can deliver the scheme on time and to budget.

Approval of Business Cases

17. All planned investments, irrespective of size and complexity should involve at least the completion of Phases I and II. For investments above delegated limits, an Outline Business Case should be submitted for approval to the NHS ME Outpost. Outline Business Cases for projects exceeding the delegated limit will be forwarded by the ME Outpost to DH for secondary review and comment. (It should be noted that thresholds and delegated limits may be reviewed and revised from time to time, and some special cases below the threshold may be reviewed by DH). Investments below the delegated limit can proceed without approval, provided they are within agreed block allocations.

18. Full Business Cases should be produced once approval to proceed has been received for schemes which exceed the delegated limit from the Outpost. Any comments concerning the Outline Business Case expressed by either the ME Outpost or DH should be addressed in the Full Business Case.

19. Following the approval decision, a CAPRICODE information sheet must be initiated for all schemes with a total cost of over £1 million. This information is recorded on a computerised system by the NHS Estates Agency to be used for monitoring and reporting on the NHS Capital programme.

Scope of work

21. The scope of work required to complete each phase and the boundaries between phases will vary from case to case. By considering the steps set out in this guide, Trusts will be able to assess more precisely the work needed to develop a Business Case in their circumstances. Discussion between Trusts and Outposts about the degree of detail required is essential before embarking on the preparation of Outline or Full Business Cases, and dialogue between Trusts and Outposts during each phase is strongly recommended. NHS Estates also provide a service enabling Trusts and Outposts to discuss technical aspects of estate options. For large scheme proposals, consultation with HM Treasury may be necessary.

22. In the past, Phases II and III of the process have been components of the preparation of an Approval In Principle (AIP) proposal. The result has often been a long, involved and costly exercise. The aim of presenting the Business Case in two phases, first in outline and then in full, with consultation between the Trust and the Outpost, is to minimise abortive work. The objective is that, by the conclusion of Phase II, the validity or otherwise of the planned investment is evident and a preferred option is identified with a reasonable degree of certainty.

23. If the Outline Business Case (Phase II) clearly indicates that there is an optimum preferred option and capital funds are readily available, then the Trust may proceed rapidly to Phase III and develop the detailed scheme. If funds are not available for several years or the preferred option is unclear, then, at a later date, Phase III will involve a more rigorous re-appraisal of the outline business case.

Managing the Business Case project

24. Trusts are recommended to establish a project management system and procedure for developing the Business Case. Production of a Business Case should be treated as a project, with each of the three phases regarded as sub-projects in their own right. This entails setting budgets and timescales, and developing a detailed project plan to establish resource inputs, tasks and related target dates.

25. The appointment of a **project sponsor** demonstrates the commitment of Trust managers at the outset of the project. The project sponsor is normally a senior manager in the organisation, who ideally will take responsibility not only for the development of the Business Case but also the design and construction stages of the capital investment. The project sponsor reports to the Chief Executive, who may wish to provide oversight of the scheme through a project board comprising senior staff within the Trust. Business Case project teams should report to the project board through the project sponsor.

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25. The appointment of a project sponsor demonstrates the commitment of senior managers to the success of the project. The project sponsor is normally a senior manager in the organisation, who likely will take responsibility not only for the development of the Business Case but also the design and construction stages of the capital investment. The project sponsor reports to the Chief Executive, who may wish to provide oversight of the scheme through a project board comprising senior staff within the Trust. Business Case project teams should report to the project board through the project sponsor.

Business Case team

25. The preparation of a Business Case requires contributions from a multi-disciplinary team. This team should be constituted to undertake the work for each phase and be thoroughly conversant with all its aspects. This team, together with the project sponsor must be able to demonstrate its ability to act as an "informed" client. Normally, the input from the team should be managed by the project sponsor, but for larger and more complex schemes, a **project manager**, reporting to the project sponsor, may be appointed to conduct the detailed work and manage the Business Case team. The skills, experience and knowledge that are required to develop a Business Case include:

- Trust business planning
- Management and operation of health-care services
- Financial analysis and costing
- Clinical experience
- Construction and property planning and management
- Management and administration of assets

26. It is probable, therefore, that the Business Case team will need to draw on a wide range of in-house skills and experience: medical, nursing, planning, accounting, professional and estate management. There may be a requirement for training, since many, if not all, team members may have no previous experience of investment appraisal or the Business Case process. External professional advice will often be needed: for example, from architects, surveyors, engineers and management consultants. The perspective of principal purchasers is also essential, and their support is required for investment proposals. Purchasers should be involved in the consideration of service requirements, and the identification of investment objectives and benefits.

External involvement

27. Effective strategic reviews (Phase I) and Outline Business Cases (Phase II) are unlikely to be concluded successfully unless there has been a dialogue throughout the process between the NHS Trust and its ME Outpost. In addition, wider involvement, commensurate with the anticipated level of the investment, may be essential, especially at the transition points from phase to phase. This might take the form of discussion with purchasers, DHAs and GPs, and surveys of "clients" - patients and the wider community.

28. Clearly judgement needs to be exercised about the level of external involvement and its timing. Any proposed development which addresses the objective of achieving seamless continuity of care in the locality, will require consultation with other providers.

Internal participation

29. The involvement and support of a range of managers and staff may be vital to the success of the Business Case, both to determine the requirement and scope of the investment, and also to participate in subsequent stages of CAPRICODE. It is important, therefore, to identify and involve key stakeholders who have a direct interest in the impact of any new initiative and upon whom the realisation of

benefits from the investment will depend. Typically, these will be leading clinicians, nurse managers and departmental heads.

30. For larger proposals, it can also be vital that all NHS Trust staff who may be affected by the proposed capital investment are consulted and given appropriate opportunities to participate in the decision making process. Realisation of the benefits of a capital investment will often be more fully achieved when the staff involved as users of new facilities participate and become committed to the changes at an early stage.

Business Case budget

31. For major capital investments, the preparation of Outline and Full Business Cases is a costly and time consuming activity. Estimates of the level of resources and timescales to prepare a Business Case vary considerably. They depend on the type and size of the potential investment, its level of risk and the complexity associated with it. A suggested budget is at least 1% of the estimated value of the capital investment for the total resource costs of Phases II and III combined (Outline and Full Business Case). On this basis, a £60 million investment might require a budget of at least £600,000 to cover the cost of staff time and external support (eg, for perhaps five to eight person-years of senior staff time, plus professional services and consultants).

Timescale

32. The elapsed time to conduct a strategic review and prepare Outline and Full Business Cases depends on the scale of the potential investment, the resources deployed and its degree of complexity. Indicative timescales for each Phase of a typical investment are:

- Phase I - three to six months (linked to the business planning cycle)
- Phase II - approximately three months
- Phase III - approximately six months (depending on the comprehensiveness of Phase II)

33. Clearly, small straightforward schemes may take only a few months, whilst the elapsed time for the largest schemes can be much longer.

SECTION 2

BUSINESS CASE GUIDE

PHASE I: SETTING THE STRATEGIC DIRECTION

Step 1 Set the Strategic Direction

1.1 This section outlines the approach that should be followed to undertake a comprehensive strategic review of the NHS Trust. The initial step in capital planning is the identification, through a strategic review, of a mismatch between future service needs and existing capital resources. Before considering any capital investment and starting to prepare a business case, it is essential to address two major questions:

- Where are we now?
- Where do we want to be?

1.2 The answers to these questions set the strategic context for a capital investment strategy. Only when they have been answered can a third question, "How do we get there?" be tackled.

1.3 The purpose of the strategic review is to set the direction for the future development of the Trust.[1] The aim is not to provide justification for a course of action that has already been decided; indeed the outcome may not be a capital solution at all. Strategic review will already be a regular feature of business planning for many Trusts with the aim of aligning providers' objectives with the changing demands of the market.

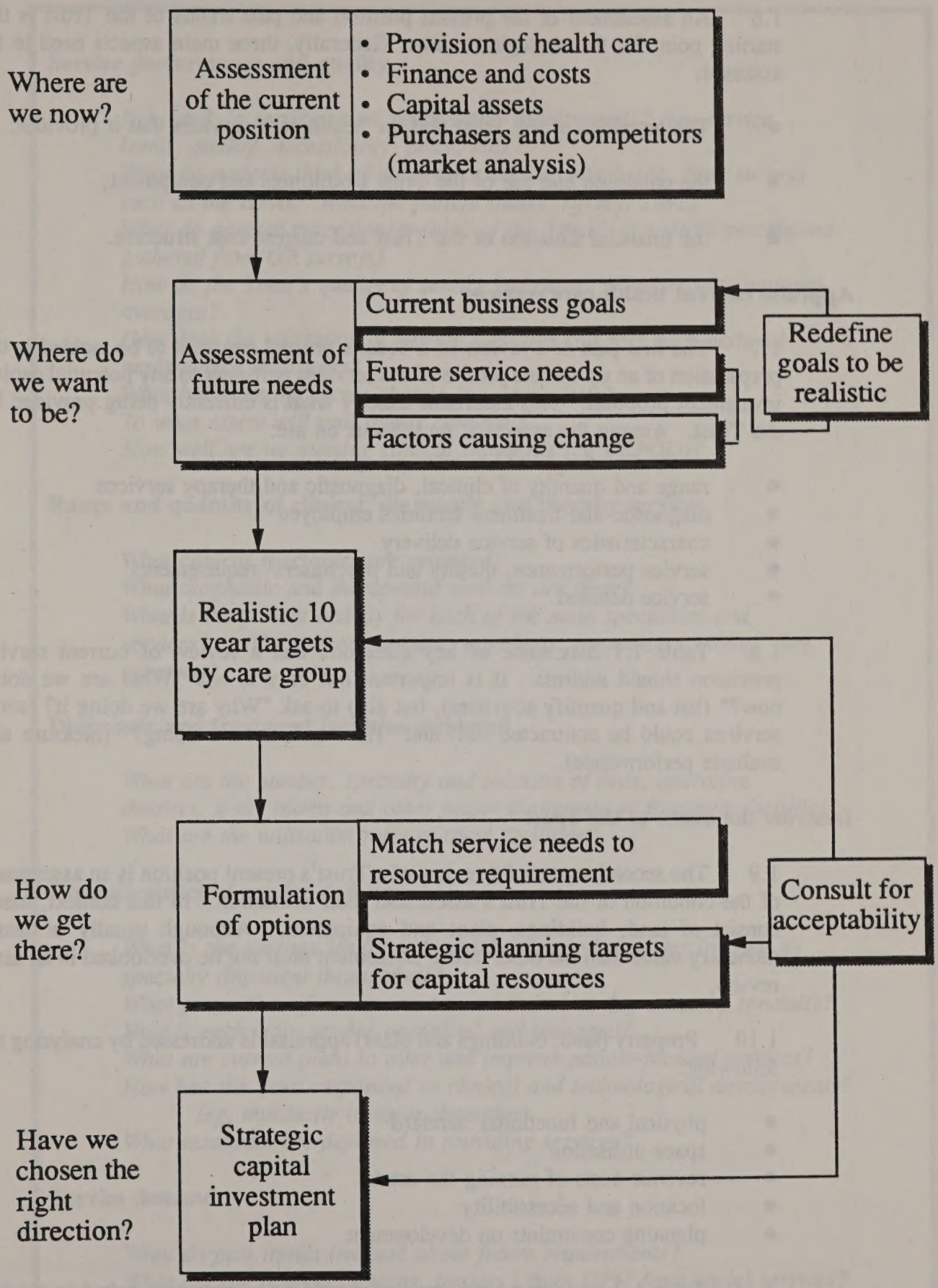
Strategic direction and business objectives

1.4 Business objectives and the strategic direction of the Trust may already be clearly set out: for instance, in NHS Trust business plans. However, if these were narrowly defined in the past or only in outline, or if circumstances have changed, then a more detailed re-assessment will be necessary if a capital investment proposal is going to be acceptable both to purchasers of health-care services and to those funding any potential investment.

1.5 Figure 4 illustrates the strategic approach to capital planning. The amount of effort which goes into this Phase of the work must clearly be tailored to the size and importance of the likely proposal that may emerge. Much of the information required may already exist in, and be drawn from, Trust business plans, and when the issues are less complex, it may be sufficient to review and update existing strategic reviews. However, for major developments a thorough strategic re-appraisal may be needed to establish the context for change.

1. Refer to ME guidance on Strategic Direction issued 1.4.92

Figure 4: Capital Planning - A Strategic Approach



Assessing the situation - where are we now?

1.6 An assessment of the present position and past trends of the Trust is the starting point for the strategic review. Generally, three main aspects need to be assessed:

- The activities of the Trust and the health-care services that it provides;
- the condition and use of the Trust's buildings and equipment;
- the financial situation of the Trust and current cost structure.

Appraise current health-care services

1.7 The first part of a review of a Trust's present situation to be tackled is the preparation of an up-to-date profile of the services pertinent to any potential capital investment proposal. This ascertains exactly what is currently being provided by the Trust. Among the aspects it must focus on are:

- range and quantity of clinical, diagnostic and therapy services
- diagnostic and treatment facilities employed
- characteristics of service delivery
- service performance, quality and purchasers' requirements
- service demand

1.8 Table 1.1 lists some of key questions that a review of current service provision should address. It is important not only to ask "What are we doing now?" (list and quantify activities), but also to ask "Why are we doing it? (some services could be contracted out) and "How well are we doing?" (measure and evaluate performance).

Describe the assets of the Trust

1.9 The second aspect of a review of a Trust's present position is an assessment of the condition of the Trust's assets and their utilisation. In this context, assets consist of land, buildings, plant and equipment. Although usually of lesser monetary value than the other items, equipment must not be overlooked in an asset review.

1.10 Property (land, buildings and plant) appraisal is addressed by analysing the following:

- physical and functional standard
- space utilisation
- revenue costs of running the estate
- location and accessibility
- planning constraints on development

1.11 Table 1.2 lists some questions that should be among those asked to conduct a property appraisal.

Table 1.1 **Illustrative questions to profile the service**

Service performance and quality

How well do services meet purchasers' requirements? (eg, service levels, quality, accessibility, price, etc)
What do patients think of the service they receive? (eg, from surveys such as the HPAU 'What the patient thinks' survey, 1992)
What do general practitioners think of the Trust? (eg, from perceptions gathered from GP surveys)
How do the Trust's quality of service indicators compare with national averages?
How does the utilisation of current facilities compare with national performance indicators?
What has been the recent change in waiting lists?
To what extent will past trends continue?
How well are we meeting clinical standards (eg CEPOD)?

Range and quantity of clinical, diagnostic and therapy services

What clinical specialties are provided?
What diagnostic and therapeutic services are there?
What is the patient activity for each of the main specialties and services? (Consultant episodes, inpatients, outpatients, clinics, day cases etc)

Diagnostic and treatment facilities employed

What are the number, specialty and location of beds, operating theatres, x-ray rooms and other major diagnostic or treatment facilities?
What are the utilisation rates of these facilities?

Characteristics of service delivery

What is the average length of inpatient stay and turnover interval by specialty (inpatient throughput)?
What proportion of treatments are conducted as day cases by specialty?
How is each main service organised and managed?
What are current plans to alter and improve patient-focused services?
How has the Trust responded to clinical and technological developments? (eg, minimally invasive therapies)
What resources are deployed in providing services?

Service demand

What do past trends indicate about future requirements?
What are the referral patterns: tertiary? from GPs? from social services?
Where does the population served come from?

Table 1.2 **Illustrative questions to conduct a property appraisal**

Physical and functional standard

What is the physical condition of the buildings by block (ABCD)?*
What is the level of compliance of buildings with statutory standards (ABCD)? (eg, fire and health and safety)*
What is the suitability of the buildings for the functions that they are intended for (ABCD)?*
What is the energy performance of the buildings (ABCD)?*
What are the reasons for the categorisations given (ABCD)?*
How do the physical and functional standards of the premises affect the quality of patient care? (eg, privacy, noise, manpower levels)

Space utilisation

What is the location of facilities on the site?
Where is the current patient accommodation?
What are the advantages and disadvantages of the present layout of the site?
What is the volume of building space per inpatient bed?
(eg, total floor space to number of beds)
What space is un-used/under-utilised in the buildings?
What land is un-used/under-utilised on the site?

Revenue costs of running the estate

What is the total property overhead per square metre?
How does the property overhead break down?
(eg, capital charge, depreciation, maintenance, decoration, heating, lighting, ventilation, cleaning, security, etc)

Location and accessibility

Where is the Trust located in relation to the population served?
What are the main roads giving access?
What is the public transport provided to the Trust's site?
What are the results of recent public and private transport accessibility studies?
What are the car-parking facilities at the site?

* Estates Category as defined in ESTATECODE

1.12 A review of equipment should focus on such features as age and condition, degree of obsolescence, operational capacity and utilisation, anticipated life, space requirements, and maintenance and other running costs.

Assess financial situation and current cost structure

1.13 The third aspect of understanding the present position of the Trust is to consider its financial position and cost structure. This entails analysing and assessing:

- current expenditure projections (capital and revenue)
- current financial projections (NHS Trust financial proformance)
- expenditure by service type
- unit prices
- income breakdown by purchaser
- main purchasers' long-term revenue positions

1.14 The aim is to explain the cost structure, understand the trends and explain differences that arise from comparison with other provider units.

Assessing the situation - market analysis

1.15 In parallel with an inward-looking consideration of the Trust's present position, the changing market for health-care services must be examined in order to formulate robust capital plans. Purchasers' changing demands must be met, and the provider must be keenly aware of the forces shaping competition at the present time and over a longer-term planning period. Business cases have to show that the competitive position of the Trust has been assessed against the background of the market which it serves.

Purchaser requirements

1.16 It is the responsibility of purchasers to assess the scope for health gain in their population (District Health Authorities and, increasingly, GP fund-holders for practice lists) and develop a comprehensive purchasing strategy. Ideally, DHAs will set out their purchasing intentions in Purchasing Plans, and ten-year forecasts of future service need by care group will be available, although in practice they will be subject to considerable uncertainty. In order that Trusts can plan capital spending effectively, purchasing authorities must be encouraged to:

- forecast future requirements and priorities in detail for at least a 3-5 year period;

- give an indicative view of their requirements over ten years.

1.17 It is likely that providers and purchasers will need to work in partnership to ensure that future forecasts can be met. However, as well as insight to purchasers' intentions, providers will often find it necessary to conduct comprehensive market research of their own to underpin demand forecasts obtained from purchasers.

1.18 An understanding will also need to be developed of the configuration of primary, secondary and tertiary care in the context of the Trust's service provision and purchasers' requirements. This review will need to examine how the Trust's services fit into a pattern of community services, referral arrangements and facilities in district hospitals, which provides continuity of care for the local population.

Understanding the demand for health-care services

1.19 Providers must not only know the pattern of current contracts and GP referrals, but have a clear view of factors that will influence future demand. In this they will be informed by analyses of disaggregated population data (demographics), such as:

- population by age group
- socio-economic structure
- morbidity
- population centres
- deprivation

1.20 Changes in these demographic factors will affect, for example, purchasers' weighted capitation and, therefore, their ability to purchase health care. Table 1.3 lists some other factors which may cause change to the demand for health-care services, to which consideration needs to be given.

Competitors

1.21 Each Trust should compile information about all the provider units in the surrounding area from whom purchasers may obtain competing services. The type of information about each competitor that is likely to be useful includes:

- profiles of the health-care services that they provide (as in Table 1.1);
- variation in the level and quality of services provided;
- travel time from the centres of population served;
- overlaps with the population served by the Trust;
- recent and planned developments to increase capacity or quality, or to reduce costs;
- known constraints, for example, on capacity or accessibility.

1.22 As well as individual competitor analyses, competitive reviews should include an assessment of the pattern of service provision in the locality, its deficiencies and potential for improvement. It is important that this focuses not only on current service provision but also on the forecast future pattern.

Table 1.3 Forecasting future service requirements - examples of change factors

Health Service

- National and regional health strategies
- Health Service productivity
- Geographical referral and admission patterns

Treatment and care

- Resurgence in primary care
- Trends towards more out-patient treatment
- Trend towards less invasive treatments
- Developments in drug technology
- Advances in technology and techniques that simplify diagnosis and treatment and reduce manpower requirements
- Technological specialisation forcing centralisation of resources at a tertiary level
- Scope for day surgery
- Trend towards treatment delivered away from main hospital sites
- Care in the community

Socio-economic

- Population movement
- Changes in disease patterns
- Local economic development or decline
- Social change

Competitive analysis

1.23 Demonstrating an understanding of the competitive forces in the market which is served by the Trust is prerequisite for a successful business case. A useful framework for analysis examines five key influences:

- *competition* rivalry between existing providers
- *new entrants* the potential for new providers to enter the market
- *buyers* purchasers' power to influence providers
- *providers* provider's ability or otherwise to influence purchasers
- *alternatives* scope for new approaches to substitute for existing practices

1.24 This type of analysis is aimed at helping Trust managers to understand the factors that are likely to influence success in the market. More details of this analytical framework are given in Appendix A.

Setting the strategic direction - where do we want to be?

1.25 Answering the second important question, "Where do we want to be?" is about determining what level, quality and cost of service the Trust will seek to achieve as a goal to meet demand in its market. Once these requirements have been identified, the Trust will be in a position to assess whether a case for change can be made.

Understanding future needs and demands

1.26 Business cases must exhibit a full understanding of the future needs and demand for health-care services in the locality. Understanding the local and Regional demand profile follows from making a full assessment of the Trust's present situation, purchasers' requirements and its competitive position, covering the aspects outlined above. The current service profile and purchasers' intentions provide base figures for market demand, on the assumption that the market stays constant and that current productivity targets are achieved. The service facilities that have to be provided are derived from the service volumes that will be demanded. Associated with the baseline will be a need for a certain number of beds, operating theatres and other service facilities.

1.27 The market, and the demands in it that will have to be met, should be considered under various scenarios. This is done by quantifying the extent by which the service requirement is sensitive to variations in such factors as demography, market share or productivity. It is impossible to predict the future with any precision but a good understanding of the possible range of requirements will lead to the development of more flexible solutions. In particular, the flexibility provided by any investment proposal to react to short-term changes is important.

Assessing the scope for improvement

1.28 By this stage, it may be helpful to apply some of the established techniques of strategic review to assimilate the large amount of data that has been gathered and assess the scope for improvement. A simple and widely used method is SWOT analysis, described in Appendix A. This is particularly effective if it focuses on serving the market, by looking internally, at strengths which can be built on and weaknesses which should be tackled, and externally, at the opportunity to serve the market better and counter threats from competition.

Matching capital assets to service needs

1.29 Only after the service facilities that will be needed have been determined, and the associated opportunities identified, can the future size and shape of the local health-care estate be determined. It is at this point in a strategic review that a statement of the future property requirement is produced. This assessment can then be compared with the existing volume, configuration and quality of capital resources identified in surveys of asset condition and space utilisation. Giving consideration to the Trust's future service needs and capital assets together is the only way to ensure that capital resources are planned correctly.

Establishing the case for change

1.30 All business case proposals for capital investment must be driven by a service strategy which aims to meet identified needs for health care and health gain. It is likely therefore that capital investment proposals will offer:

- delivery of an additional volume of service to meet identified increases in demand;
- delivery of a reduced volume of service because of an expected decrease in demand;
- delivery of new services, or existing services in a new way;
- maintaining or enhancing the quality of the environment in which services are provided;
- better value for money through improvements to the productivity of the human resources or a part of the estate;
- improved financial performance.

1.31 If a case for change arises - for rejecting the "do nothing" strategic option - then providers should consult widely to confirm that this outcome is acceptable. Consultation should be internal, between planners, estate managers and clinicians, and external, with purchasers and possibly other providers.

1.32 It is possible that the conclusion of the strategic review will explicitly point to a set of objectives for capital investment, and a range of tenable options may

also be apparent. In these circumstances, Phase I will, in effect, incorporate the next two steps of the Business Case process (Steps 2 and 3), which will normally constitute part of Phase II of the process.

Affordability

1.33 The affordability of a capital investment solution is a critical constraint on the business case. Purchasers support, in broad terms, will need to be elicited at the outset. Purchasers may be unwilling or unable to pay higher prices, which include capital charges. Trusts will need to consider options that allow service delivery to be improved without raising unit costs.

1.34 When considering affordability it is important to note that the ability of purchasers to pay capital charges might change in the future. A move towards capital charge allocations based on weighted capitation; or a fragmentation of purchasing caused by growing numbers of GP fundholders, might prejudice the long term future of expensive developments.

1.35 As a general rule it is expected that Trusts will seek to invest cost effectively, preferably reducing unit costs even when higher capital charges are included. This can often be achieved by rationalising service provision and the estate.

Planning for the next step

1.36 It is recommended that, at the conclusion of the strategic review, findings are discussed with the Outpost with a view to proceeding to the next phase of the process, preparation of an Outline Business Case. Main purchasers' perspectives on the validity of the conclusions that have been made will also be important. Because investment appraisal and the preparation of business cases is often costly, Trusts should not proceed to further work before taking the opportunity to verify their analyses.

1.37 It is also recommended that agreement is then established between Trusts and the Outpost about the scope of work in Phase II, based on a mutual assessment of the conclusions from this Phase. Trusts may then produce a project plan for the next phase of work and, if it is appropriate and they have not already done so, appoint a project sponsor to take responsibility for the next phase.

Outputs produced from Step 1

1. Current service profile for the Trust
2. Asset condition surveys
3. Space utilisation surveys
4. Equipment utilisation surveys
5. Analysis of Trust operating economics
6. Market-based forecast demand scenarios
7. Appraisals of competitors and the Trust's competitive position
8. Planned future service profile for the Trust
9. Indication of purchaser support for change

CHECKLIST - SETTING THE STRATEGIC DIRECTION

1. Appraise the services currently provided and produce an up-to-date service profile.

2. Evaluate purchasers' requirements, health strategies and objectives.

3. Assess the future demand for health-care services, giving consideration to demographic and other relevant factors.

4. Analyse the market and competitors.

5. Review the strengths and weaknesses of the Trust, and consider the opportunities and threats presented by the market.

6. Link the service volumes that are likely to be demanded with the service facilities that will need to be provided.

7. Match the service facilities that will need to be provided with the capital assets that will be required.

8. Conduct a property appraisal and produce a physical condition survey, a space utilisation study and a breakdown of estate running costs.

9. Compare the capital assets required with what is currently in place.

10. Identify whether there is a gap between the current capital asset base and what is required - a reasonable case for rejecting a "do nothing" option.

11. Assess the affordability to purchasers of potential capital investment.

12. Discuss the outcome of the strategic review with the Outpost to verify the analysis.

BUSINESS CASE GUIDE

PHASE II: OUTLINE BUSINESS CASE

Step 2 Define Objectives and Identify Benefit Criteria

2.1 Once the strategic direction for change has been set, objectives must be defined to meet the specific service requirements that have been identified. These objectives provide the basis for:

- formulating options for appraisal;
- developing the benefit criteria against which options will be measured;
- providing criteria by which to judge the success of the investment.

2.2 The purpose of a business case is to show that the overall impact of an investment will be beneficial and will maximise the ratio of benefits to costs. A clear statement of objectives and a range of associated benefit criteria is the starting point for the preparation of a business case, and must be developed before generating options for change.

The need for customer-focused objectives

2.3 A guiding principle is that objectives, and the benefits that flow from attaining them, must be determined by consumer's (ie, patients') needs, and reflected in purchasers' demands for the range and level of services to be provided. This is generally achieved when objectives concentrate on requirements rather than on the means of accomplishing the result (ie, on *what* needs to be achieved, not on *how* it is to be achieved).

Defining objectives

2.4 Any proposed investment must be consistent with the principal policy aims of the NHS. These generally describe, at a high level, the policies of DH Ministers, purchasers, and the Region. High-level policy aims will take account of some or all of the following:

- Health of the Nation targets for Key Areas
- Patient's Charters
- Care in the Community policy
- Purchasers' stated policy aims
- NHS Management Executive objectives

2.5 The proposed investment objectives will also need to consider criteria such as the six developed by the Kings Fund:

- access to services - in terms of location and time (travel and waiting times, etc);
- relevance to need - for the whole community and appropriate care for the individual;
- social acceptability - including responsiveness to user views;
- effectiveness - for individual patients and for the population as a whole;
- equity - equal treatment for equal need;
- efficiency - value for money.

2.6 Aims and objectives of NHS Trusts should already be clearly stated in existing business plans. If they are customer-focused, they will be aimed at improved delivery of high quality services and value for money. They might include:

- specified changes in activity
- improvements in quality of care
- changes in market share for given specialties
- improvements in patient satisfaction
- recruitment and retention of well-qualified staff
- reductions in Trust service costs
- maintaining or enhancing the environment for teaching

2.7 However, in the light of a thorough strategic review, Trust objectives might have to be clarified or expanded and given a sharper focus.

Investment objectives

2.8 Investment objectives must be set that will contribute to the general business objectives of the Trust. They should relate to outcomes that are sought as a result of any proposed project.

2.9 Investment objectives should be SMART - Specific, Measurable, Achievable, Relevant and have a Time element. To ensure this, measures of success may need to be identified alongside each objective. Good objectives use words like 'improve', 'reduce' or 'maintain' and specify quantified targets: for example, to improve by 10% or to increase by a specific amount by a given date.

2.10 The following are example objectives:

- to extend the proportion of total general acute activity treated as day cases from 25% to 60% by 2001
- to improve the quality of the maternity unit to physical condition B or better within five years

- to reduce energy usage by 15% within five years
- to reduce facility running costs by 10% within three years

2.11 A statement like 'to upgrade the quality of the surgical ward block' is a poor objective as it has no timescale, nor does it identify the standard to which the ward block is to be upgraded (which could be particular mandatory or statutory requirements). Furthermore, the need for improved environmental quality should be allied to its use. In this example, the upgrade could be linked to a measurable quantified objective, such as a reduction in infection rates.

2.12 Objectives will not in most instances refer explicitly to a capital project, as the project is only a means to an end. It is not something which is to be achieved for its own sake. It is necessary to guard against making matters such as the location and standard of accommodation, or a new building versus refurbishment, an objective. These will be treated as options rather than objectives at the next stage of developing the business case. Objectives should be sufficiently detailed so that the broad service aims are clear, but not so specific or narrow that they preclude consideration of a range of options.

Ranking

2.13 It helps to rank objectives in priority order. The order should usually reflect customer's views, so consultation and discussion should take place with purchasers, DHAs and GPs as well as 'clients', that is patients and the wider community, as part of the strategic review. Ranking objectives will help with the evaluation of options and, if necessary, the tailoring of proposals to match available finance.

Constraints

2.14 Constraints are issues that impact upon objectives and set the bounds for the potential investment. Constraints are often related to financial issues, for example, a maximum capital spend of £5 million, or a limit on the revenue costs of an investment (increasingly likely since the introduction of capital charges).

2.15 Constraints may also relate to physical environment, availability of appropriate staff, appropriate timescales or policy commitments. A constraint can often be regarded as part of an objective - as the ceiling within which the desired outcome is to be achieved.

2.16 All constraints should be identified and examined to see how rigid they are and whether some flexibility exists. ~~For instance, a financial constraint may suggest that the range of options should include some that employ private finance.~~

Identifying benefit criteria

2.17 Benefit criteria are used to select and evaluate the options that will be generated in the next stage of investment appraisal (Step 3). They are derived from the service objectives and constraints developed and described earlier. They

may be developed in group discussion involving the Business Case team, senior Trust managers and purchasers' representatives.

Process

2.18 The aim is to produce a list of between five and ten main benefit criteria. These will be used at later stages to produce a shortlist of options. They will then be used in the evaluation of the shortlist, resulting in the identification of a preferred option (Steps 4, 6 and 7). Each of the main benefit criteria is described by a list of potential benefits (and possibly disbenefits). A process is required that generates a list of benefits which will be sought from an investment, and then group these under the heading of the main benefit criteria. Criteria which are often used include quality of care, effectiveness of clinical services, accessibility for patients, staffing factors (for example, recruitment and availability of staff), flexibility, environmental quality or marketability of services.

2.19 An approach is to consider the hierarchy of objectives headed by high-level policy aims. The expected and desired benefits of meeting each investment objective are identified by descending from the top through the Trust business objectives. This generates a long list of benefits which are then classified into common groups of main benefit criteria. This "top-down" process is illustrated in Figure 5. As a consequence of the link between the benefit criteria and the objectives, the relative importance of each criteria should be apparent.

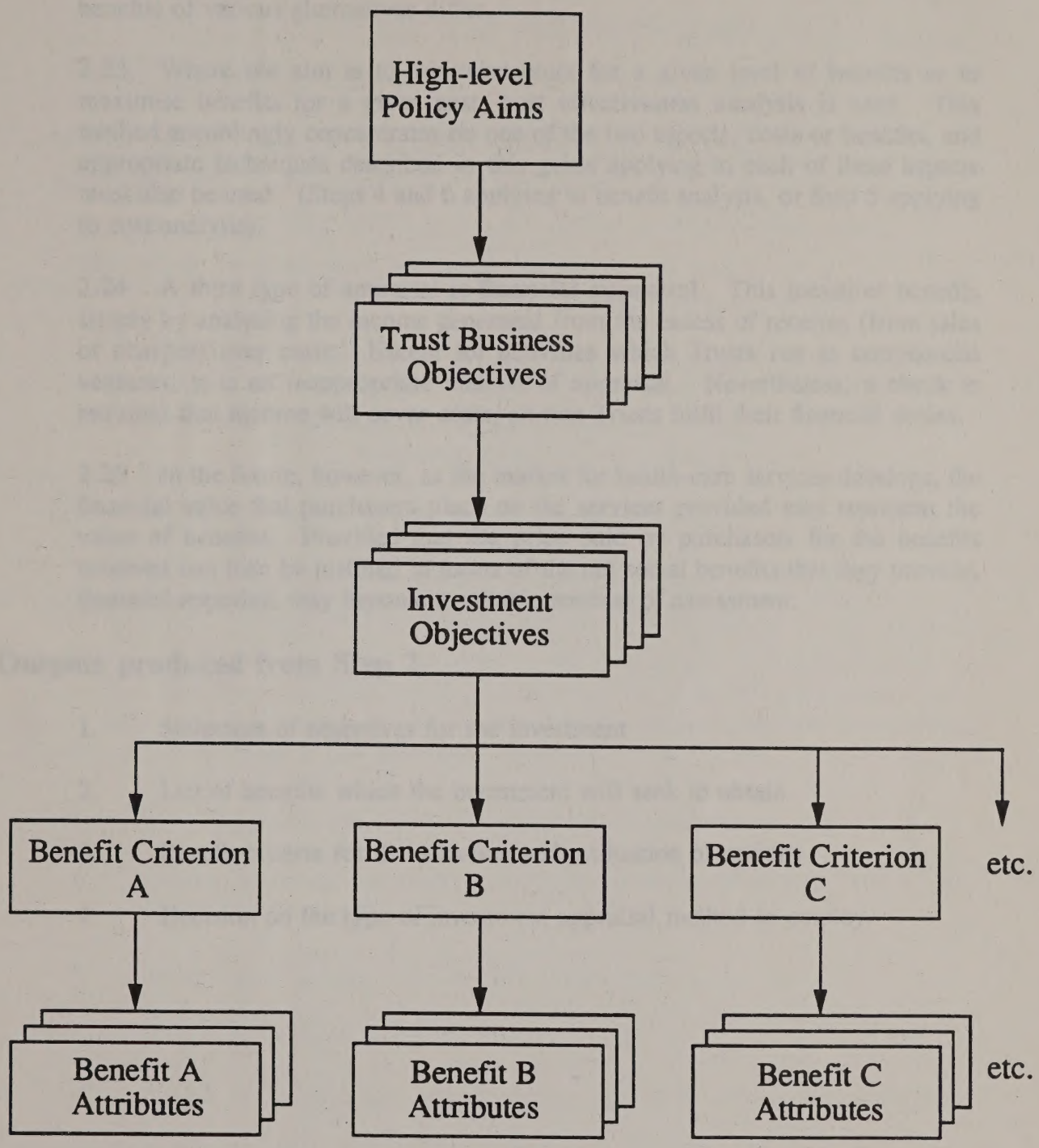
Cost savings

2.20 Where benefits can be expressed in terms of cost savings, they will be included in the costing analysis of options. Cost saving must not be treated as a benefit criterion, otherwise this aspect of an option will be appraised twice: as a component both of the cost analysis and the benefit analysis.

Choosing the type of investment appraisal method

2.21 The preparation of a business case will always involve an appraisal of investment options. The method used to do this is related to the principal objectives of the investment. Ideally, major investments will be preceded by a full **cost benefit analysis**. This method tries to measure both the costs and outcomes of all the alternatives under consideration using, as far as possible, monetary values. The questions it seeks to answer are: "Will the benefits outweigh the costs?" and "Which option gives the greatest net benefit?"

Figure 5 : Identifying Benefit Criteria (Top Down)



2.22 In practice, it is very difficult to value all benefits in monetary terms; for example, to identify and assess the value realised by reduced ill health in a population. The method more usually adopted is to compare the costs and identifiable cost savings of alternatives alongside judgements of the relative benefits released by each option. This is the approach set out in this guide, and it should be used for all capital investment decisions where both the costs and benefits of various alternatives differ.

2.23 Where the aim is to minimise costs for a given level of benefits or to maximise benefits for a given cost, **cost effectiveness analysis** is used. This method accordingly concentrates on one of the two aspects, costs or benefits, and appropriate techniques described in this guide applying to each of these aspects must also be used. (Steps 4 and 6 applying to benefit analysis, or Step 5 applying to cost analysis).

2.24 A third type of appraisal is **financial appraisal**. This measures benefits simply by analysing the income generated from the excess of receipts (from sales or charges) over costs. Except for activities which Trusts run as commercial ventures, it is an inappropriate method of appraisal. Nevertheless, a check is required that income will cover costs, so that Trusts fulfil their financial duties.

2.25 In the future, however, as the market for health-care services develops, the financial value that purchasers place on the services provided may represent the value of benefits. Provided that the price paid by purchasers for the benefits received can then be justified in terms of the net social benefits that they provide, financial appraisal may become a suitable method of assessment.

Outputs produced from Step 2

1. Statement of objectives for the investment
2. List of benefits which the investment will seek to obtain
3. Benefit criteria for the selection and evaluation of options
4. Decision on the type of investment appraisal method to employ.

CHECKLIST - DEFINING OBJECTIVES AND IDENTIFYING BENEFIT CRITERIA

1. Identify the high-level policy aims for the Trust.

2. Identify and review the Trust business aims and objectives.

3. Formulate objectives for the capital investment strategy that are SMART (specific, measurable, achievable, relevant and time-linked).

4. Check that the chosen objectives concentrate on results rather than the means of achieving them.

5. Rank objectives in customer's order of priority.

6. Identify the benefits that will be realised by meeting the objectives set for capital investment.

7. Classify the benefits into groups of benefit criteria.

8. Determine the appropriate type of investment appraisal methodology to adopt based on the objectives of the investment.

Step 3 Generate Options

3.1 The purpose of this step in the process is to identify as wide a range as possible of options available to meet the objectives identified in Step 2, which will provide the identified benefits. The list of possible options should include non-capital options, as well as options involving capital investment. A basis for comparison will also be required (the "do nothing" or "do minimum" option). It is recommended that, following the completion of this step, shortlisted options are reviewed with the ME Outpost before proceeding to the next step.

Option generation process

3.2 Option generation involves two main stages: conceiving a long list of possibilities by reference to the investment objectives, followed by refinement to produce a shortlist.

Conceiving options

3.3 Conceiving a long list of possibilities will usually require a range of people to be consulted within the Trust and more widely. The generation of options provides an opportunity to be creative and innovative, to challenge constraints, and to revisit the objectives of the investment. In order to reflect a wide range of views, purchasers and other outsiders, as well as managerial, professional and clinical staff from the Trust, should be involved. A brain-storming session with an experienced panel can be helpful to generate a large number of initial ideas. Points to remember at this conceptual stage are:

- be imaginative, include radical and minimal options;
- do not be critical too soon: options should not be eliminated until all the ideas have been gathered;
- set a high target number for ideas - and exceed it;
- challenge assumed standards and constraints;
- do not be fixed by what seems feasible and viable, sifting takes place later;
- revisit the objectives of the investment: they may need reformulation.

Long list

3.4 It is likely that brainstorming sessions will generate a large number of ideas for options. When analysis of options begins, it may be apparent that many of the ideas duplicate others or are infeasible. Through a process of analysis and

identification of duplication and common characteristics, it should be possible to reduce all the ideas to a "long list" of, say, ten or twelve options, each with a number of sub-options. The long list should include a wide range of solutions:

- a base option ("do nothing" or "do minimum");
- non-capital solutions, such as:
  - buying in services from elsewhere;
  - contracting out services;
  - delivering services away from the main hospital site;
- options to refurbish existing facilities, short of major upgrading:
  - building repair;
  - replacement of plant and equipment;
- options to make better use of existing facilities by adaptation or re-arrangement;
- rationalisation options which release savings from land sales or running cost reductions and help to reduce backlog maintenance;
- options to upgrade or adapt the existing stock;
- new building options on the existing site - although large, inflexible schemes are discouraged;
- a radical solution, such as total replacement on a green-field site.

3.5 Each long-list option should be briefly described in terms of what it entails and the service requirements it would meet. It will be sufficient to record the details in no more than two or three paragraphs. It is important to be able to document the full list of options which were considered. This is to demonstrate the process applied and its objectivity.

Shortlist

3.6 The long list of options generated will need to be reduced for full evaluation to a number that provides real choice but is manageable; at least three options, and six at the most, are recommended. This can be done by drawing on the benefit criteria derived in Step 2 and applying the most important criteria to the options. Some options may be impractical or infeasible; for instance, a green-field option where a site search produces no suitable locations (a constraint). Non-capital solutions should be given equal attention in the sifting process.

3.7 Although the costs of options will not have not been explicitly identified at this stage, it should be possible to sift the long list and eliminate options which are clearly unaffordable or which, when compared with another option, can be identified as inferior. Inferiority is demonstrated either in terms of fewer benefits

delivered at higher, or equal cost or the same level of benefit delivered at a higher level of cost.

3.8 Also, when options are similar, in that they provide comparable benefits by the same method, a single, representative option should be identified and used in subsequent stages of analysis. This will ensure that the evaluation contains a full cross section of options which deliver benefits.

3.9 Options which are chosen at this stage will then undergo formal cost benefit analysis (Steps 4 to 7 below). The reasons for discarding options should be recorded. The basis for short-listing options should reflect purchasers' preferences and may be discussed with the ME Outpost.

The do-nothing or do-minimum option: the baseline

3.10 The "Do Nothing" or a "Do Minimum" option should be retained as a baseline in the shortlist since the implications of doing nothing must be assessed. It may be that a do-nothing option is not acceptable, or possible. However, the do-minimum option must then be included as a baseline so that the extra benefit and costs of other options can be measured against it. This will involve understanding the cost of merely maintaining the current level of service, over the full lifetime of the proposed project. The effect of doing nothing might be that the life of the option is limited.

3.11 Significant resource input may be required just to maintain the status quo: that is, doing the minimum. Buildings or plant may have come to the end of their useful life and may require replacement or upgrading. If the throughput of patients is increasing, maintaining the service provision may take additional costs of staff, energy and other running expenditures.

Describing the short-listed options

3.12 For the Outline Business Case (Phase II), short-listed options should be described in sufficient detail for the benefits and costs to be understood and assessed in Steps 4 and 5. They should, therefore, include factors such as:

- intended outcomes (objectives - health gain, etc)
- expected workloads and throughput (inpatients, day cases, outpatients, etc)
- functional content (beds by specialty, support services)
- accessibility (for patients, staff, visitors, etc)
- staffing consequences (increases, reductions, etc)
- phasing (and interim impact on services)
- implications for the estate (future developments, land sales, etc)
- effects on other services (following implementation)
- flexibility to accommodate changes in circumstances
- expected impact on performance indicators
- impact on financial performance

Reviewing the options

3.13 The generation of a shortlist of options is a significant point in the Business Case process. Before proceeding further, it is recommended that the shortlist of options is discussed with the ME Outpost and main purchasers with the aims of:

- confirming the objectives and benefits identified in Step 2;
- verifying the choice of options against these objectives and benefits;
- ensuring that no tenable options have been eliminated;
- avoiding abortive work on the next steps which are to analyse costs and benefits (Steps 4 to 6).

Outputs produced from Step 3

1. A long list of options involving both capital and non-capital solutions which might support the Trust in meeting its business objectives and are consistent with the objectives of the investment;
2. Documentation of the long list of options;
3. An analysis supporting the short-listing of options identifying those rejected because of identified constraints, inferiority or poor match with benefit criteria;
4. A shortlist of options that are considered acceptable and feasible for cost benefit analysis.

CHECKLIST - GENERATING OPTIONS

1. "Brainstorm" to produce a wide range of initial ideas for meeting the objectives.

2. Coarse sift the ideas to produce a long list of possibilities.

3. Ensure that the long list includes a wide range of options, including do-nothing or do-minimum choices.

4. Briefly describe each of the long-list options; document these and the process used to arrive at them.

5. Sift the long list to reject options that are infeasible, unaffordable and which do not match the benefit criteria.

6. Aim for at least three options on the shortlist; keep a do-nothing or do-minimum option on the shortlist.

7. Ensure that the short-listed options are consistent with investment aims and objectives.

8. Produce descriptions of the short-listed options in sufficient detail for a cost benefit analysis.

9. Consult the ME outpost on the choices that have been made.

Step 4 Measure the Benefits

4.1 Measuring the benefits of the options short-listed in Step 3 uses the benefit criteria identified in Step 2. This section describes the approach to evaluating benefits in order to rank options from best to worst. This step is conducted before selecting a preferred option. The aim is to identify non-financial benefits of each option which can be matched against option costs (see Step 5).

Measuring the benefits

4.2 The benefit criteria that were identified in Step 2 will fall into three categories:

- benefits which can be quantified financially;
- benefits which can be quantified, but not in financial terms;
- benefits which cannot easily be quantified.

4.3 For example, an investment might result in a reduction in building maintenance (can be put in financial terms), or in reduced travelling times for patients (cannot be easily put in financial terms, but can be measured) or in increased staff morale (difficult to quantify).

4.4 Where possible all benefits should be quantified. Benefits which can be quantified financially (cost savings) should be included in the cost analysis of options (Step 5). In this step, the evaluation of benefits focuses upon the non-financial benefits of options.

4.5 The benefits that will be obtained from each option should be assessed using the benefit criteria identified in Step 2. For the Outline Business Case a simple ranking of options in order, from best to worse, against the criteria may suffice for small, low risk appraisals.

4.6 However, the construction of weighted benefit scores is preferable to, and more robust than, simply ranking options. Even if carefully identified benefit criteria are used by an evaluation team to judge the order of merit, the process is weak because it gives no clear measure of the degree to which one option is better than another. The process of weighting and scoring options described below is more helpful, and Full Business Cases (Step 9) will be expected to record the results of such an exercise.

Weighting and scoring of options

4.7 There are a number of alternative ways of identifying weights for benefit criteria. The recommended approach to scoring options and weighting benefit criteria is to involve people with a broad range of representative views. These will include members of the Business Case project team and other interested parties, and include, where appropriate, representatives from purchasers. It is also important to have some independent participants who can help to ensure that decisions are as objective as possible and not biased by preference for a particular solution. Objectivity is also enhanced by separating the exercises of scoring the options from that of weighting the benefit criteria.

4.8 Scoring and weighting is best performed by the representatives meeting together in a workshop session. Alternative ways of identifying scores and weights, such as using questionnaires, are likely to be less successful. The workshop will ensure that:

- there is common understanding of the definition of each option;
- there is common understanding of the definition of each of the benefit criteria;
- a variety of views are expressed about the relative importance of the benefit criteria;
- any differences in opinions related to weights for benefit criteria are identified and recorded;
- at the end of the process there is agreement to the weights assigned to criteria.

Weighting the Criteria

4.9 The following approach is recommended:

1. Having scored each of the options against each of the benefit criteria, establish the relative importance of each criterion. This is done by estimating a weighting for each criterion.

2. This is simplified if the benefit criteria are first given a relative ranking. The most important criterion is ranked the highest and given weight of 100.

3. Each of the other criteria is then examined against the most important criterion. This is performed by carrying out a series of "pairwise comparisons".

4. A pairwise comparison consists of selecting another criterion and deciding how much less important that criterion is compared to the most important criterion.

5. For example, if the first criterion is assigned a weight of 100, and the second criterion is considered to be half as important then a weight of 50 is assigned to the second criterion.

6. Steps 3 to 5 are then repeated for each successive pair of criteria, until each has been weighted (ie, the first and second criteria, then the second and third, and so on).

7. The weights for each criterion are then scaled to total 100 and recorded.

Scoring of options against benefit criteria

4.10 The following practical approach is recommended for scoring options on each of the benefit criterion in a workshop session:

1. Each option is examined in turn against each of the benefit criteria. A brief description of how that option meets the criterion is agreed upon. The options are not scored at this stage.

2. Each of the options is then scored between 0 and 10 on each of the criteria. The descriptions agreed upon above should make this process considerably easier. Although it can be difficult to agree on exact scores, it is usually easy to rank the options in order. The better the option performs, the higher the score that should be awarded. The scores, and the reasons for the scores, should be recorded.

4.11 It is important to remember that the scoring of options is not an exact science, but an opinion of the practical benefits that will be received from the implementation of each of the options.

Timing

4.12 Some options may bring benefits sooner than others. The evaluation team will have to assess whether the timing of benefits is an important factor. Timing can be handled as a benefit criterion and treated like other benefit attributes: that is, given a weight and then each option scored according to when the benefits would be released. A more sophisticated method could be to set out the time profile of benefit scores for each option, weight the scores according to when the benefits are released, and calculate a time-weighted average.

Evaluation

4.13 Having assigned weights and scores to each option, the figures should then be multiplied together to provide a total weighted score for each option. Figure 6 gives the type of format in which weighted scores can be calculated and recorded, and has been completed with details of an example. It should now be possible to rank options in terms of benefits and to identify a preferred option on the basis of benefits only.

see back of P44 for diagram

Recording the result

4.14 The process and reasoning behind the scores and weights must be clearly documented to demonstrate that a plausible analysis has been carried out, that is consistent with the major investment goals and benefit criteria. It is important to recognise that the assigned weights, and the scores given to options, are value judgements. In order to assign weights and scores, negotiation and compromise needs to take place. It is the number of people involved in the process and their expertise that lends credibility to these value judgements.

Baseline Benefit Levels

4.15 For the (non-financial) benefits identified in Step 2, it will be necessary to identify the current position (or baseline). This is essential so that benefits realisation plans can be drawn up and measures for success included for each of the anticipated benefits related to the preferred option (Step 9).

Outputs produced from Step 4

1. Identification of weights for benefit criteria;

2. Identification of scores for each criterion for each option;

3. Total weighted scores for options;

4. Current level of benefits achieved/baseline;

5. A preferred "benefits" option.

CHECKLIST - MEASURING THE BENEFITS

1. Confirm the benefit criteria (attributes) that will be used to rank options.

2. Select an expert and representative team to weight and score the benefits of each short-listed option.

3. Give a score (1 to 10) to each option on each of the benefit criteria.

4. Give a weight (0 to 100) to each benefit criterion.

5. Multiply weights and scores to provide a total weighted score for each option.

6. Rank options in terms of benefits and identify the preferred option on the basis of benefits.

7. Write a report on the process, recording results and demonstrating that an objective analysis has been performed.

Step 5 Identify and quantify the costs

5.1 The aim of this step of the business case process is to identify the total net cost of the options relating to the planned investment. This requires estimates to be made of:

- capital costs of new investment
- revenue costs of running the Trust
- opportunity costs of resources already owned
- consequential costs borne by others

5.2 The accuracy of the costing should be sufficient to distinguish between each option. It is usual to find that the impact of running costs is as important as capital costs in assessing the costs of schemes. In order to conduct a proper investment appraisal, discounted cash flow (DCF) techniques must be employed.

Costing principles

5.3 Each short-listed option, beginning with the "Do Nothing" or "Do Minimum" option, needs to have the associated costs, and cost savings, identified and quantified. Treatment of each option must be consistent, and important costs must not be omitted.

Baseline cost

5.4 The total cost of the "Do Nothing" (no-change) option is the baseline for comparison of the cost of the other options. The baseline cost will normally be the cost of extrapolating the present running costs of the Trust into the future on the assumption that the existing estate remains and is maintained in its present condition.

Cost estimation

5.5 The following paragraphs give guidance on certain basic principles that should be adhered to in the costings.

Sign convention

5.6 For the purposes of capital investment appraisal in the NHS, all costs are to be treated as positive numbers. Hence receipts, from property sales or commercial arrangements (eg, from leasing retail space), and cost savings are treated as negative amounts. On this basis, the most attractive options from the aspect of cost will be those with the lowest net present costs.

Figure 6

Calculation of Weighted Scores

Reference	Benefit Criteria Titles	Benefit criteria weights	Option A		Option B		Option C		Option D	
			Score	Weight x score	Score	Weight x score	Score	Weight x score	Score	Weight x score
1.	*Quality of clinical care.*	*30*	*0*	*0*	*0*	*0*	*7*	*210*	*10*	*300*
2.	*Accessability.*	*15*	*0*	*0*	*1*	*15*	*4*	*60*	*10*	*150*
3.	*Flexibility of accommodation for alternative use.*	*20*	*0*	*0*	*4*	*80*	*6*	*120*	*9*	*180*
4.	*Quality of the physical environment.*	*20*	*0*	*0*	*5*	*100*	*4*	*80*	*3*	*60*
5.	*Acceptability to staff.*	*15*	*0*	*0*	*0*	*0*	*3*	*45*	*7*	*105*
TOTAL		*100*		*0*		*195*		*515*		*795*

Base year

5.7 All cost estimates must be stated in the same base year at a common price level. The base year should be the same for all options. The base year is defined as Year 0.

Inflation

5.8 Adopting a base year for cost estimates means that the effect of price inflation on costs incurred in future years can be excluded. This means that if a unit of input costs £x this year and its cost is expected to rise in line with general inflation (ie, the retail price index), then the same figure, £x, is used as the cost in future years. The Health Services Prices Index (HSPI) gives an indication of trends in input costs.

5.9 However, where inflation is expected to affect costs differentially, the effect of this should be included in costings. So if an input is expected to rise in price by, say, 2% a year more than the RPI, then the real price needs to be used in the estimate. (In this purely illustrative example, the real price in, say, two years time would be the current price multiplied by (1.02 x 1.02)). Since real future price trends are always uncertain they should be examined as part of the sensitivity analysis (Step 6).

Sunk costs

5.10 Sunk costs are expenditures that have already been incurred or irrevocably committed. Examples would be planning and design costs for previous, unsuccessful investment appraisals. They should be ignored in appraisals.

Opportunity costs

5.11 Investment appraisal looks at costs that will be incurred in the future. However, this includes the cost of continuing to tie up resources which have already been paid for but which could be employed elsewhere. If an asset already owned, such as land, a building or equipment, used in an option has a market value, it is not a sunk cost, but represents an opportunity cost, since it could be sold. For example, if an option involves building on a piece of land which is already owned by the Trust, and has a market value if sold for an alternative use of, say, £2 million, then that amount must be included in the appraisal as a cost.

Marginal, average and semi-fixed costs

5.12 If levels of output vary between options, the total costs incurred must be used in the costing, and in determining them it can be helpful to distinguish in a given situation whether the differences in running costs are marginal. Central guidance, such as information on standards for costing published by the National Steering Group on Costing (FDL(92)74) will be helpful here.

5.13 Marginal cost is the extra cost of producing one extra unit of output and is usually related to variable costs which tend to change in proportion to the level of

activity. Average cost is the total cost of all the resources employed divided by the number of outputs produced. For many activities, a change in volume results in an increase or decrease in average costs, and total costs do not change in proportion to their existing level: they are said to be semi-fixed.

5.14 For example, the marginal cost of a diagnostic procedure conducted on a single patient might just be the relatively small cost of the medical supplies consumed and electricity used for the equipment involved. If the staffing levels do not need to be increased, then labour costs are not included in the marginal cost. In this example, the marginal cost is small and is less than the average cost of the procedure. However, if resources were already fully used the marginal cost of conducting the procedure on one more patient would include the cost of additional staff members, and the marginal cost would be greater than the average cost.

Full-life costs

5.15 In calculating the costs of options, full costs of options should be included, including the ongoing running costs such as maintenance and staffing. Maintenance costs tend to rise in real terms as premises or equipment get older and this is a factor which needs to be considered in the comparison of options.

5.16 In investment appraisals over a long period, assets may require replacement or refurbishment, and it is important not to omit these costs from the cash flow projections.

Phasing of costs

5.17 The phasing of capital expenditure on land, buildings, fees and equipment must be identified and allocated to the year in which the cash expenditure will actually be incurred. Similarly, the timing of receipts from any sales of land, building or equipment must be ascertained. The phasing of costs has an impact on the cash flow of each option. This has implications for the discounting of options, affordability and prices.

Appraisal period

5.18 The period of appraisal should normally equate to the intended period of use of the building. This is the period over which it can be used for the specific purpose that it has been provided. For hospital buildings this will normally be the remaining physical life of the building; conventionally this is assumed to be 60 years. During such a lifetime, a building will need to be refurbished periodically to maintain its use, and the associated costs must be included in the appraisal. However, where building type, design or location may allow the building to have some alternative use and a market is likely to exist for the property, the appraisal period can be shorter. This period may be no more than 20 to 30 years, equating to the expected period of foreseeable use.

Residual values

5.19 In some appraisals of investment options the period of the appraisal will be less than the economic life of the property involved. Economic life is the period up to the point when major refurbishment is required for the building to continue in use. In these cases, the value of property which has a disposal value at the end of the appraisal period should be accounted for by subtracting its residual value from the cash flow in the final year of the appraisal. The residual value can be taken as the lower of net asset value after deducting accumulated depreciation or expected market value.

Capital charges

5.20 Capital charges - depreciation plus a required return on net assets - should not be included in the analysis of the discounted cash flow. The discounting technique (see below), already includes the capital costs of the project, so ading capital charges would lead to double counting. However, capital charges do affect Trust prices and, therefore, have to be considered in establishing the affordability of the investment to purchasers.

Wider effects

5.21 The wider, consequential effects of options must be considered and included. These may be cost increases or decreases borne by other parts of the NHS, government or the public. Examples are: journey times (an opportunity cost for patients and visitors and a cause of actual cost to ambulance services), infrastructure improvements (eg, the cost of building new or improved roads), environmental changes (eg, the loss or gain from a change in land use or visual amenity). Where it is not possible to place a monetary value on these aspects, they should be appraised as one of the benefit criteria in Step 4.

Capital costs

5.22 The main elements which make up capital costs (and opportunity costs of existing assets) can be categorised as:

- Land
- ~~Works costs~~ Departmental costs] works costs
- On costs
- Fees
- Equipment

Table 5.1 gives a list of the main items that these cost categories comprise.

Table 5.1 **Capital costs**

Type of Capital Cost	Source of cost data
Land	
Purchase price of new land Opportunity cost of land already owned (Cash released from land sales)	Local market information, estate surveyors.
Property	
Opportunity cost in next best use Refurbishment (building repair and equipment replacement) Upgrading and adaptation works	Local market information, estate surveyors, Inland Revenue District Valuer.
Construction - new build	
Works costs: - Preliminary and enabling works - site preparation and demolition - Internal building and engineering works - Plant and equipment normally provided and installed in a building Specific on-costs: - Communication space and lifts - External building works (drainage, roads, landscaping, etc.) - External engineering works (For utilities and ancillary services, etc) - Auxiliary buildings	Departmental cost allowances, CONCISE 4.
Professional fees	
Commissioned and directly provided services for planning, design execution of schemes and the purchase/disposal of property: - Architects - Engineers - Estate surveyors - Quantity surveyors - Project managers - Other specialist professional and managerial fees	CONCISE4.
Equipment	
Costs of new equipment supplied by the health authority (Groups 2 to 4) Installation costs Second hand values of transferred equipment	Equipment Cost Allocation Guide, CONCISE4.

5.23 For Outline Business Cases (Phase II), outline new building designs or provisional plans for upgrading/adaptation may be needed and require some experienced or professional assistance to prepare. Cost targets for capital should be established using departmental cost allowances plus an appropriate percentage for overheads. These should be validated by using other estimating methods where the characteristics of the option are unusual, or, in the case of new building, there are clear reasons why a standard design (eg, Nucleus) will not be used.

5.24 For new building options, the functions to be accommodated provide a starting point for estimating a core capital cost (numbers of beds, theatres and other major diagnostic and treatment facilities). For upgrading and adaptation of existing buildings, capital costs will depend on the condition and suitability of existing buildings and the extent of work necessary to meet the service objectives of the investment proposal.

CONCISE

5.25 Departmental cost allowances are held in the NHS Estates CONCISE 4 computer system which establishes cost targets for new-build projects based on their departmental cost. Further details of the CONCISE system can be found at Appendix E.

Value added tax

5.26 In an economic investment appraisal of public expenditure, value added tax (VAT) is not a true cost, but a transfer of money from one point to another. Hence, VAT should not be included in the discounted cash flow analysis of the investment appraisal.

5.27 However, when VAT cannot be recovered by NHS Trusts, it is a real cash cost with an affect on Trust finances and prices to purchasers. Therefore, when Trusts are assessing the affordability of options, VAT that is paid and not recovered should be included: for instance, in the calculation of capital charges.

5.28 VAT should also be included when summarising the total cost of a capital investment.

Revenue costs

5.29 Revenue, or running, costs must be fully included in an appraisal. These recurring costs are always at least as important as capital costs, and it must not be assumed that they will not change from the base "do nothing" option. For Outline Business Cases, assessments of revenue cost estimates must:

- assume that the running costs of each option will normally be different and distinguish between them;
- explain the differences in running costs between options;
- include all running costs;

Table 5.2 **Components of a revenue cost model**

Key demand drivers Number of inpatients Number of outpatients Number of day cases Completed consultant episodes	**Key resource inputs** Service staff costs: - Medical - Nursing - Support (pharmacy, pathology, etc.) - Ancillary (Portering, security, etc. Management and administrative staff costs Service costs: - consumables - equipment maintenance Estate costs: - building maintenance (upkeep, repair, etc.) - grounds maintenance - local authority business rates - energy consumption - rental/lease charges - estate management Contract services: - catering - laundry - cleaning
Key component factors Length of stay per patient Mix of specialties Mix of staff skill/grade/number Performance indicators - productivity - efficiency Hospital size (bed numbers) Operational staffing policies Teaching status Location (Inner city/suburban, London/provincial) Estate characteristics - building design - building layout and form - accessibility - number of sites - age of buildings - size - energy efficiency	

Joint proposals with universities

5.34 Universities should share the costs of schemes containing a teaching and research element. In these situations, NHS Trusts must consult with the university to confirm that the teaching/academic content of schemes will attract funding from the Higher Education Funding Council for England (HEFCE) or the appropriate bodies in Scotland, Wales or Northern Ireland. The capital funds for the teaching/academic element must be identified in the option concerned, but with appraisal projections adjusted for reimbursement of capital payments and running costs for the teaching/academic element.

Discounting

5.35 A technique called discounting should be applied to take account of the potentially different timing of options and opportunity costs of resources, such that more weight is given to earlier costs rather than later costs. This reflects the fact that it is preferable to pay costs later rather than sooner, and receive benefits sooner rather than later.

5.36 Appendix B provides information on discounted cash flow techniques used to compare option costs, including a worked example of discounting. The final cost analysis must be discounted at the appropriate HM Treasury rate, currently 6%, as shown in the purely illustrative example in the table below. Capital and revenue expenditure may be shown separately, as in the example, but are added together to calculate a net present cost for total expenditure.

DISCOUNTED CASH FLOW

£ millions	YEAR							
	0	1	2	3	4	5		6 to 60
Capital costs								
Departmental cost	5.0	5.0	5.0	5.0	5.0			
On costs	1.0	1.0	1.0	1.0	1.0			
Fees	0.5	0.5	0.5	0.5	0.5			
Equipment					3.0			
Total capital costs	6.5	6.5	6.5	6.5	9.5			
Land sales						-1.0		
Revenue costs:								
Staff	20.0	20.0	20.0	20.0	20.0	20.0		19.0
Administration	1.0	1.0	1.0	1.0	1.0	1.0		1.0
Maintenance	3.0	3.0	3.0	3.0	3.0	2.0		2.0
Total revenue costs	24.0	24.0	24.0	24.0	24.0	23.0		22.0
Net Total Cash Flow	30.5	30.5	30.5	30.5	33.5	22.0		22.0
Discount Factors at 6%	1.00	0.94	0.89	0.84	0.79	0.75		11.95*
Net Present Cost = 417.8	30.5	28.7	27.1	25.6	26.5	16.5		262.9

* Sum of the discount factors for years 6 to 60

lowest net present cost,

5.37 On the basis of the costing analysis undertaken in this stage of work and the discounting of costs, it may be possible to identify ~~a preferred option on the basis of discounted cash costs alone~~, without referring to the benefits analysis carried out in Step 4. ~~This preferred "costs" option is the option that has the lowest net present cost~~.

Affordability

5.38 At this stage, when the cash flows for each option have been calculated and set out, the Trust needs to consider the following questions:

- *Is the ~~preferred~~ LEAST COST option affordable?*
- *What will the impact be on prices to purchasers?*

5.39 Often a capital ceiling will have been identified and it will be evident that the preferred option cannot be afforded because it will exceed the ceiling for funds that are likely to be available. Where affordability cannot be demonstrated, it will be necessary to revisit the costs identified in options and consider opportunities for cost reduction: for example, by phasing the ~~preferred~~ LEAST COST option differently, adopting a different design concept, or altering the mix of upgrading/adaptation/new build. If the project is still deemed to be unaffordable, then it will be necessary to reconsider the objectives of the investment and the content of the options.

Impact on Prices

5.40 Once the evaluation has assessed the total and discounted cash costs of options, it will be necessary to examine whether the investment can be afforded by purchasers. In general, investments will be difficult to justify if they increase the revenue costs of the Trust, and hence prices to purchasers. Here the effect of capital charges must be considered. Capital investment will result in increased depreciation charges and the need to realise a return on the new assets which will be reflected in increased capital charges. These increased charges may be offset by the rationalisation brought about by an investment.

Outputs produced from Step 5

1. Identification of existing costs;
2. Identification and valuation of capital costs of each option;
3. Identification and valuation of running costs of each option;
4. Calculation of capital and running costs of each option;
5. Documented description of the cash flow projections of each option;
6. Affordability of options;
7. A ~~preferred~~ least "costs" option.

5.37 On the basis of the costing analysis undertaken in this stage of work and the discounting of costs, it may be possible to identify a preferred option on the basis of discounted cash costs alone, without referring to the benefits analysis carried out in Step 4. This preferred "costs" option is the option that has the lowest net present cost.

Affordability

5.38 At this stage, when the cash flows for each option have been calculated and set out, the Trust needs to consider the following questions:

- *Is the preferred option affordable?*
- *What will the impact be on prices to purchasers?*

5.39 Often a capital ceiling will have been identified and it will be evident that the preferred option cannot be afforded because it will exceed the ceiling for funds that are likely to be available. Where affordability cannot be demonstrated, it will be necessary to revisit the costs identified in options and consider opportunities for cost reduction: for example, by phasing the preferred option differently, adopting a different design concept, or altering the mix of upgrading/adaptation/new build. If the project is still deemed to be unaffordable, then it will be necessary to reconsider the objectives of the investment and the content of the options.

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Outputs produced from Step 5

1. Identification of existing costs;
2. Identification and valuation of capital costs of each option;
3. Identification and valuation of running costs of each option;
4. Calculation of capital and running costs of each option;
5. Documented description of the cash flow projections of each option;
6. Affordability of options;
7. A preferred "costs" option.

CHECKLIST - IDENTIFYING AND QUANTIFYING THE COSTS

1. Identify the total costs of the base-line - the "Do nothing" or Do Minimum" option.

2. Identify all the capital (non-recurring) costs for each option.

3. Identify all the revenue (running) costs for each option.

4. Check that all costs are at base-year (Year 0) price levels (constant prices).

5. Adjust any future costs that will rise or fall in real terms by an appropriate cost index.

6. Develop a costing methodology (eg, a cost model) to project forecasts of future running costs.

7. Combine revenue and capital cost projections to produce forecasts of project cash flows.

8. Subtract capital charges and VAT (where this is material) from all costs before evaluating the discounted cash flows.

9. Discount the cash flows using the Treasury discount rate to calculate the net present costs of each option.

10. Rank options by their net present costs to identify the preferred option on the basis of costs.

11. Record the results, ensuring that assumptions are documented.

6.1 By this stage, preferred options in terms of benefits and costs will have been identified in Steps 4 and 5, respectively. A number of assumptions will have been made in assigning costs and benefits which, because they concern uncertain future events, must be tested. Sensitivity analysis is the step in the investment appraisal process which aims to examine the robustness of the ranking of options. The most robust options are those which, even if the assumptions upon which they are based turn out to be different, deliver the same benefits with the least variation in projected costs.

Analysing risk

6.2 Risk arises from the possibility of more than one outcome occurring, with the likelihood that something will not turn out as planned or expected. The major categories of risk to be considered in NHS capital investment appraisals are:

- *Uncertainty* The projected costs and benefits of an option must always be subject to some uncertainty. Assumptions made, such as on building on-costs, the scope for future efficiency savings or the precise level of future demand, are normally indeterminate, and particularly so at the Outline Business Case phase.

- *Optimistic Bias* When the possibility that something will turn out differently is not fully allowed for, optimistic bias occurs. For example, if the most likely cost of an option is reckoned to be £20 million, but there is a one in four chance that it will be £24 million, then probabilistically the expected out-turn is £21 million (£20m x 0.75 plus £24m x 0.25). In this case the "best estimate" (£20m) is less than the probabilistically expected out-turn, and the estimate is optimistically biased.

- *Variability* Where the range of possible out-turns of an option is wide, it is subject to variable risk. The range of variability may be different between options under consideration, and adverse outcomes may fall more heavily on specific areas of the Trust's activities than others and seriously affect particular groups of individuals.

6.3 A variety of techniques and methods can be employed to analyse and quantify the risks associated with uncertainty, optimistic bias and variability. They vary in the level of technical sophistication required and in the amount of data necessary to use the techniques.

Sensitivity testing

6.4 Sensitivity testing is an approach commonly used to assess the riskiness of investment proposals. Its purpose is to understand how sensitive the options are to changes in the underlying assumptions that have been made. It involves varying the important and uncertain variable in the appraisals of benefits and costs to see what effect this has on the conclusions. If the conclusions are not markedly affected, then this contributes to the robustness of the case. The technique is not difficult, especially if the calculations are automated using simple spreadsheet models.

Testing benefit criteria

6.5 A weighted scoring system for assessing benefit criteria is described as Step 4 of the Business Case process. If only ranking of options has taken place, then a sensitivity analysis of benefits will not be possible.

6.6 In sensitivity analysis, both the scores (ratings) and weightings are varied to examine how the ranking of options responds to changes in these variables. The numbers should not be altered by a fixed amount or percentage, but by an amount which reflects the uncertainty. This uncertainty may have been expressed by those who participated in the workshop to assign values. If, for example, there was considerable disagreement as to a particular weight that should be allocated to a criteria then a large alteration in the weight should be made when performing sensitivity analysis.

Testing scores

6.7 To perform a sensitivity analysis of the scores given to the benefit criteria for an option, the following steps are taken:

1. Determine the agreed range of scores for each criterion;

2. Alter the score for the first criterion within its agreed range and note the result;

3. Repeat the analysis for the scores of each of the other criteria;

4. Note the total benefit weighted score when all scores for the option are at their maximum, and when they are at their minimum.

Table 6.1 gives an illustrative example of testing the sensitivity of benefit scores.

Testing weights

6.8 Performing a sensitivity analysis of the weights allocated to each criteria is more complicated because when the weighting of one criterion is changed, it affects the weighting of the rest:

1. Determine the agreed range of weights for each criteria;

Table 6.1 **Testing sensitivity of benefit criteria scores**

Example:

Attribute	Benefit criteria weights	Score	Weight x score
Quality of clinical care	*30*	*10*	*300*
Accessibility (travel times)	*15*	*10*	*150*
Flexibility of accommodation	*20*	*9*	*180*
Quality of the physical environment	*20*	*3*	*60*
Acceptability to staff	*15*	*7*	*105*
	100		795

Variation in scores:

Scores for Quality of Clinical Care and Accessibility reduced to 8

Attribute	Benefit criteria weights	Score	Weight x score
Quality of clinical care	*30*	*8*	*240*
Accessibility (travel times)	*15*	*8*	*120*
Flexibility of accommodation	*20*	*9*	*180*
Quality of the physical environment	*20*	*3*	*60*
Acceptability to staff	*15*	*7*	*105*
	100		705

Result: Weighted score is reduced to 705 from 795

Table 6.2 **Testing sensitivity of benefit criteria weights**

Example:

Attribute	Benefit criteria weights	Score	Weight x score
Quality of clinical care	*30*	*10*	*300*
Accessibility (travel times)	*15*	*10*	*150*
Flexibility of accommodation	*20*	*9*	*180*
Quality of the physical environment	*20*	*3*	*60*
Acceptability to staff	*15*	*7*	*105*
	100		795

Variation in weights:

Weight for Quality of Clinical Care is increased by 10 to 40:

Weight to be subtracted from:

Accessibility = 10 x 15/70 = 2
Flexibility = 10 x 20/70 = 3
Quality of environment = 10 x 20/70 = 3
Acceptability to staff = 10 x 15/70 = 2

Attribute	Benefit criteria weights	Score	Weight x score
Quality of clinical care	*40*	*10*	*400*
Accessibility (travel times)	*13*	*10*	*130*
Flexibility of accommodation	*17*	*9*	*153*
Quality of the physical environment	*17*	*3*	*51*
Acceptability to staff	*13*	*7*	*91*
	100		825

Result: Weighted score is increased to 825 from 795

2. For the first criterion allocate the change in weight across the other weights.

3. Adjust the weights arising from the change in weight of the first criterion, and note the result;

4. Repeat the analysis for the weights of each of the other criteria.

Table 6.2 gives an illustrative example of testing the sensitivity of benefit weights.

6.9 Clearly a large number of sensitivity analyses on weighted benefit scores can be carried out, by varying different combinations of weights and scores. However, a limit should be applied, reflecting the size of the appraisal and the perceived levels of risk. Because weighting and scoring systems invariably rely on subjective judgements, sensitivity testing is important to highlight the effect of any bias.

Testing costs

6.10 Testing the sensitivity of options to variations in cost involves recalculating the capital and revenue cost calculations with various cost items set at different ranges of values. The discounted cash flow calculations are then repeated to calculate the Net Present Costs that arise from alteration.

6.11 It is insufficient to test the sensitivity of the investment options simply by adjusting all costs, or broad categories of cost by, say, plus or minus 10%. Rather, testing should examine a wide range of possible uncertainties and ask *What if?* questions about all the assumptions that are made; for instance, about:

- Costs and prices of the main revenue costs: what if they rise or fall annually in real terms, or with a compounding effect (eg, labour costs rising by a real 1% per annum, or building maintenance costs changing as property ages)?

- Cost expenditures and savings: what if these occur later or sooner than envisaged (eg, because of delays in realising the benefits of a project)?

- Improvements in efficiency or effectiveness: what if these are not achieved at the rate expected? (eg, because staff re-organisation following implementation is more difficult that envisaged)

- The phasing of the project: what if it changes (and the timing of payments is altered, or transitional costs are incurred for longer periods)?

- Demand for services: what will the impact be if demand differs from that expected (eg, if workload, populations, cross-boundary flows are greater or smaller)?

- Receipts of cash: what if these are not achieved when expected (eg, if market conditions mean that land sales do not occur when planned)?

6.12 This list is purely illustrative, and planners are expected to critically review the specific assumptions underpinning each option in an appraisal. The probable extent of variation is not likely to be the same in every option, nor to vary by the same amount upwards and downwards in optimistic and pessimistic cases. It should be noted too some parameters will be interdependent, and a change in one assumption may imply a change to another assumption. For example, a rise in labour rates may imply a rise in the cost of another labour-intensive input to the option, such as that for contract services or professional fees in the capital costs.

Switching values

6.13 One particularly effective way of presenting the results of sensitivity testing is to calculate the *switching value* or *crossover point* of crucial factors. The switching value is the amount by which the variable would have to change in order to effect the ranking of options. The calculation of switching values can be especially helpful where there is uncertainty about the amount by which project parameters are likely to vary. It can show how much the value would have to fall (if it is a benefit) or rise (if it is a cost) to make it not worth undertaking the option, and a view can often be relatively easily taken about the likelihood of the factor turning out worse than the switching value.

Scenario planning

6.14 Scenario planning looks at the effect on the success or otherwise of an option of combining different assumptions about the future. A small number of scenarios (normally optimistic, pessimistic and neutral) is chosen and the expected net present cost of each investment option is calculated for each of the chosen scenarios. Each scenario can itself be tested for sensitivity to changes in the key variables. For investment appraisal the key questions to explore under different scenarios are:

- *Does the ranking of options change under optimistic and pessimistic scenarios from the central case?*
- *How likely are the best and worse cases to arise?*
- *What would be the effect on affordability and Trust prices of each scenario?*

6.15 Scenarios can be constructed from data about the project cost and the strategic context within which it is being proposed. For example, a pessimistic scenario might be that capital costs turn out at the top of the possible range, project completion is delayed so that revenue reductions are later or lower than envisaged, and demand for services is not as high in the medium to long term as projected.

Robustness of options

6.16 Sensitivity testing and scenario planning will highlight the assumptions to which the result of the appraisal of investment options is most sensitive. If the

conclusions do not differ when different assumptions are made (that is, a different ranking of options does not result), then the conclusions are likely to be robust. If, under a changed assumption, the results of the benefit or cost assessments do alter, then the likelihood that the change in the assumption will arise must be assessed. If the likelihood is low, then the choice of the preferred option may remain robust; otherwise the choice is unduly risky.

Identifying risk

6.17 Sensitivity testing makes managers aware of the nature of the risks associated with the most likely options. For the leading options, appraisals should:

- identify the factors that are most certain and those that are least certain;
- identify where uncertainty might be of the most importance, and the implications of key uncertainties for benefits and costs;
- make at least broad quantitative judgements about probabilities and ranges of potential variation of the important factors determining the outcome;
- highlight cases where the probabilities of under and over-estimation do not balance out, and assess whether there is optimistic bias (and if there is adjust figures accordingly);
- consider whether risks and uncertainties justify more flexible designs.

6.18 The aim should be to develop options that minimise the major risks. For instance, flexible designs that can accommodate changes in demand or the ways in which health service are delivered, smaller developments that reduce the time and cost overruns associated with large projects, or phased options which provide scope for alteration if circumstances change.

6.19 At this point in the Business Case process, many of the most significant risks to the leading options will have been identified. It is worthwhile to begin thinking about the formulation of a risk management strategy in outline, covering:

- the key risks identified to the investment;
- the early-warning indicators that will show that problems are arising;
- the means by which early-warning indicators will be spotted;
- the action that will be taken to minimise the impact of changes to assumptions.

Outputs produced from Step 6

1. Sensitivity analyses on benefits
2. Sensitivity analyses on costs
3. Risk scenarios
4. Report on the sensitivity analyses and option risks
5. Outline risk management strategy

CHECKLIST-- ASSESSING SENSITIVITIES TO RISKS

1. Conduct sensitivity tests on the weighted scores for the benefit criteria for each option.

2. Conduct sensitivity analyses on the costs of each option.

3. Ensure that the factors that are tested for the effect of variation realistically reflect all the likely risks.

4. Examine best (optimistic), worst (pessimistic) and central case scenarios.

5. Identify the critical factors which affect the ranking of options.

6. Assess the likelihood of variations in the critical factors occurring.

7. Assess whether the options are robust, or are subject to undue risk.

8. Develop less risky options if none of the feasible options are robust.

9. Produce a report on the sensitivity analysis and option risks.

Step 7 Identify the Preferred Option

7.1 This is a short step in the investment appraisal process. It consists of analysing the information that has been generated in Steps 3 to 6 on each short-listed option about their benefits, costs and level of risk. The final choice of a preferred option rests with Trust senior managers, or a range of options may need to be put to purchasers so that they can express their preference. The business case team should aim to present the information succinctly to help managers reach a decision.

Selection of the preferred option

7.2 The steps involved in making a choice are to rank the options in order of benefits (Step 4), and then to set the net present costs of each option (from Step 5) alongside the benefits. It may be possible immediately to identify an option which is clearly the best solution (maximum benefits at lowest cost with an acceptable degree of risk), or to rule out options which are clearly inferior (fewer benefits at higher costs).

7.3 However, a clearly superior choice may not be immediately evident; often the choice will be between options offering lower costs but fewer benefits and options at higher cost but with better benefits. Determining the preferred option will be a matter of judging the value of the additional benefits of an option against the additional costs that would be incurred if the option were selected. In these situations, a fine assessment of the risks and uncertainties (Step 6) and an appreciation of purchasers' views can help with decision making.

Affordability

7.4 The ability of the Trust to afford each separate option will have been reviewed as part of Step 5 (Identifying and quantifying the costs). The affordability of the preferred option should now be re-examined. Initially the focus of the question *Is this investment option affordable?* may be on the capital funds required. However, it is the revenue consequences of investments which the Trust, and its customers, will have to afford every year.

7.5 It is necessary therefore to assess the impact that implementing the option has on the contract prices a NHS Trust will have to charge for its health-care services. Costs will have to be covered by income year by year, and Trusts must be confident that existing purchasers will continue to contract for health care services, or that new purchasers will secure additional contracts.

The implication of capital charges

7.6 In assessing the impact on prices, capital charges must be considered. Capital charges are significant when considering the affordability of the planned development and they must be included in year-by-year financial projections, together with external financing limit (EFL) allocations, running costs, and contract income from purchasers.

The impact on competitiveness

7.7 The benefits that the preferred option will deliver - health and quality gains, for example, and the prices that the Trust will charge as a result, will have an impact on competitiveness. Trusts therefore also need to compare the prices and quality levels of comparable services offered by competing local providers.

Private finance options

7.8 Any option using private finance should show how best value for money will be achieved. Private finance arises when the ownership or use of assets is obtained by any means other than direct purchase financed by allocations, receipts or donations (eg, by leasing, contracting out or joint ventures ~~where the NHS obtains a disproportionate benefit from the arrangement).~~ or in other arrangements that imply deferred payments by the NHS

7.9 Value for money in these circumstances arises if some additional services are provided by the supplier of capital and the value of those services offsets the extra cost of private financing. These services should transfer the majority of risks to the private sector. Any proposal must be handled as described in current guidance FDL(93)03, and normally requires approval from NHS ME and, if above delegated limits, from HM Treasury (see FDL(93)33). Guidance on leasing was given in FDL(93)47

Outputs produced from Step 7

7.10 The output from this step is the selection of the preferred option. The reasons for the recommendation should be recorded to show that it has been reached on the basis of proper assessments of:

- the relative costs and benefits of short-listed options;
- risks and uncertainties;
- affordability; and
- purchaser support.

8.1 The objective of presenting the Outline Business Case is to demonstrate project viability and obtain a capital allocation, subject to the availability of funds and the preparation of a Full Business Case. The case must be presented in a way that provides the ME Outpost with the best possible information upon which to make a decision.

Presentation of results

8.2 The Outline Business Case must be set out in a written report. The purpose of doing this is to summarise the results of the Strategic Review (Step 1) and the Investment Appraisal (Steps 2 to 7) and present information concisely to enable decision makers to reach an informed judgement.

Level of detail

8.3 As a rule, Outline Business Case reports should be no longer than twenty pages of A4 script, plus supporting appendices or tables. In order to provide guidance to writers, the NHS ME will provide exemplar Outline Business Case documents. (See the Introduction at the beginning of this guide for information about how to obtain these and other exemplars).

Content and structure

8.4 The results of a capital investment appraisal should be set out in a report covering:

- the strategic context;
- the options considered, including:
  - do nothing or do minimum
  - realistic alternatives
  - the preferred option;
- a comparison of the preferred option with the alternatives;
- its implications and effects.

8.5 Table 8.1 indicates the main points that should be addressed by the Outline Business Case report. The major features of the appraisal must be set out clearly and in a logical order (ie, step-by-step, as in the process set out in this guide), together with all relevant assumptions. It must show that:

- the recommended option is strategically viable, with evidence of support from purchasers;

- a credible shortlist of options has been examined to arrive at the preferred option, and that best use is planned to be made of existing resources;

- benefits and the outline capital and revenue costs of options have been assessed using sound quantitative techniques;

- risks and uncertainties have been appraised, and sensitivity analyses conducted to test for robustness;

- a broad understanding of the likely impact on unit prices and competitiveness has been developed.

Consultation and approval

8.6 It is unlikely that an Outline Business Case will be successful unless consultation has been held along the way between NHS Trusts, Outposts and purchasers. The aim should be to reach consensus throughout the process, although the approval will not be formally given until the Outline Business case has been presented and reviewed.

8.7 This step completes Phase II of the Business Case process. Assuming that the Outline Business Case is approved, the production of a Full Business Case can proceed. Before embarking on Phase III, however, Trusts are recommended to discuss the scope of the Full Business Case with the Outpost. A review of the work that has been performed to present the outline case should be conducted to identify what has to be done to produce a Full Business Case.

8.8 The CAPRICODE information sheets, CAP O and CAP I, should be completed as far as possible at this stage. They should be sent to the NHS Estates Agency at the following address:

NHS Estates
Department of Health
1 Trevelyan Square
Boar Lane
LEEDS LS1 6AE

Table 8.1 The Outline Business Case Report

Executive summary
Summary of options.
Benefits of the preferred option for patients (eg, health gain, quality gain, improved access, price reductions) and for the estate (rationalisation or reduction in backlog maintenance).
Statement of purchaser support.

Strategic context
Past and future trends, performance indicators.
The current health-care facilities and benefits provided for patients.
Future demand for health-care services.
Competitive position of the NHS Trust.
Capital assets required to meet future demand.
SWOT analysis.
The case for change, based on the gap between existing assets and future needs.

Options
Capital investment objectives and criteria for selection.
Long list of options, preliminary sift, description of the shortlist of options examined, reasons for exclusion/inclusion, flexibility of options.
Tabulated appraisal of benefits (quantified as far as possible).
Tabulated appraisal of costs: capital costs (land/buildings/on-cost/equipment), annual running costs (main cost components if available, including capital charges).
Tabulated discounted capital and running cost cash flows (net present costs or equivalent annual costs).
Assessment of risks and uncertainties with tabulated sensitivity analyses of benefits and costs and sensitivity to changes in demand and performance.
Tabulated summary of the appraisals of investment options.

The preferred option
Statement of best option: why it is superior/others are inferior.
Key factors responsible for superiority.
Precise nature of any benefits obtained at higher cost than other options.
Sensitivity of costs to variations in assumptions, with key risks identified.
Indication of purchaser support.

Financial implications
Impact on costs, including capital charges, and net effect on prices.
Year-on-year cash flow.
Impact on NHS Trust balance sheet and income and expenditure account.
Sales of assets.
Financing arrangements: eg, private finance, Higher Education funding.
Professional certification: business case signed off by Finance Director

BUSINESS CASE

PHASE III: FULL BUSINESS CASE

Step 9 Produce the Full Business Case

9.1 Work should not start on the Full Business Case until the Outline Business Case has been approved. Trusts are recommended to consult with the Outpost on the scope of work required to produce a Full Business Case. This should be based on an assessment of the content of the Outline Business Case, aimed at identifying the nature and extent of the information, and level of detail, needed to present a Full Business Case.

9.2 Phase III of the business case process therefore entails reviewing and refining the work done for the outline case, and developing and presenting plans for managing the project. The result of this stage will be a detailed business case. In order to show that the Parts II and III of CAPRICODE have been adequately prepared for, among the mandatory outputs of this stage are a Development Control Plan, and plans for project management and monitoring, post-project evaluation and risk management to accompany the Full Business Case.

Refining the business case

9.3 The business case must at this stage be reviewed to update the information provided in the Outline Business Case and to refine the details of the investment appraisal leading to the selection of the preferred option. This involves re-visiting Steps 1 to 7 set out in this guide.

The strategic context (Step 1)

9.4 The strategic context of the proposal must be reviewed to ensure that it remains up-to-date and that sufficient detail is provided to support the assessment that there is a case for change:

- *Customer requirements* Are the customer service requirements and description of the client population broadly correct? Do purchasers' intentions remain firm as stated in the Outline Business Case? Evidence confirming continued support from purchasers is required in the Full Business Case.

- *Competitive position* What changes and developments have taken place to affect the Trust's competitive position? (ie, what have current or potential competitors been doing to develop services?)

- *Service facilities* Can a mismatch between future service needs and present capital assets be shown clearly by the detailed assessments of the Trust's present position and the condition and utilisation of its estate?

9.5 Quantified workings will be required in the Full Business Case to show how the services to be provided are derived from projections of demand and the characteristics of the population to be served. However, it is not intended that Trusts should have to fine-tune calculations at this stage. Rather, they will be expected to show that the quantification is correct for a set of strategic assumptions that have been soundly and fully researched, reviewed and understood. The aim is not to be precisely correct, but to show broadly that the direction of change is right. Trusts will need to show that they have analysed how sensitive their conclusions are to changes in demand and purchasers' requirements in the medium to long term.

Objectives and benefit criteria (Step 2)

9.6 For the Outline Business Case, this step will have produced a statement of objectives for the investment, a list of benefits that it would seek to obtain and the benefit criteria for the selection and evaluation of options. The review should:

- confirm that the investment objectives remain current;
- prune out any benefit criteria that experience showed were weakly linked to the objectives;
- identify any important benefit criteria that were omitted from the original assessment of benefits.

Benefits realisation plan

9.7 For the preferred option, a *benefits realisation plan* should be developed. This will be required to develop the post-project evaluation plan described below. For each benefit attributed to the benefit criteria, this requires the following questions to be answered:

- What is the benefit and when will it be achieved?
- Are there any disbenefits?
- What actions need to be taken to achieve the benefit?
- Who is responsible for ensuring that the benefit will be achieved?
- How will achievement of the benefit be measured?
- Who will monitor how well the benefit is being achieved?
- What other conditions need to be satisfied to achieve the benefit?

9.8 By this stage it is important to have developed a Trust-wide understanding and commitment to the realisation of benefits from the capital investment. This means that not only are individuals identified with responsibility for realising each benefit, but that there is widespread ownership and identification with the project. This will generally be achieved through the participation of people in the business

case process through involvement in decision making and consultation on the most important aspects, followed by continued involvement through the project implementation stages.

9.9 For example, benefits arising from say, the provision of new laboratories, are most likely to be obtained if the managers and staff who use the facilities are involved in these aspects of appraising the options and developing the business case. Acceptance of change may be vital if benefits are to be realised with the greatest effect. For instance, the provision of new day-surgery facilities may require alterations to staffing arrangements or the closure of existing facilities to maximise benefits or cost savings. Frequently change is more readily accepted when the people affected are given the opportunity actively to participate in the process. Consequently, benefit realisation plans must address the important issues of organisational development and management of change.

Option shortlist (Step 3)

9.10 The content of the option longlist should be reviewed, and the shortlist should be re-examined to ensure that it is robust. Full Business Cases that proceed beyond the intermediate tier for approval from the DH or HM Treasury must explicitly state reasons for the selection of options that were short-listed. Time spent liaising with DH at this stage will help the basis for the short-listing of the options to be accepted.

Benefits assessment (Step 4)

9.11 Depending on the size and complexity of the investment proposal, it may only be during the Full Business Case phase that a full benefit scoring and weighting exercise involving an expert team is conducted. If a scoring and weighting exercise was performed earlier, revision of the benefit measurements may be necessary at this stage in order to:

- take out the effect of any benefit attributes which now assessed to be weakly linked to the investment objectives;

- incorporate any benefit criteria which have subsequently arisen into the assessment.

9.12 The overall aim is to ensure that in the final result subjective judgements, influenced by minor objectives or attributes of the options, have not unduly affected the outcome.

Cost assessment (Step 5)

9.13 A more detailed assessment of the costs of the options, and particularly the preferred option, must be undertaken for the Full Business Case. However, the level of detail and accuracy must reflect the importance of the cost item to the overall cost of the option. Generally, it is the case that:

- Sound estimates for annual running costs are more important than an accurate capital costing, since they:

  - are committed costs for the future and affect prices that purchasers will have to pay;

  - usually have a greater effect upon any comparison of net present costs than capital costs (for example, at a discount rate of 6% over 20 years, annual running costs of £10m have a net present cost of some £115m).

- Costs incurred in the earlier years of a project life need to be more accurate since they have more significance in a comparison of net present costs (for example, at a discount rate of 6%, the net present cost of amounts incurred in 10 years time are discounted by around 50%, and in 20 years time by 70%).

9.14 Consequently, the implications are that the Full Business Case review of the costing should focus particularly on annual running costs for all options and the capital costs of the preferred option. This is likely to entail:

- Further detailed work on developing running cost estimates; if a cost model has not previously been developed, this will involve the design of a model on a computer.

- Corroboration of running cost estimates, by estimating costs using several methods and by wide consultation.

- Completion of the design brief, preparation of preliminary sketch plan designs, and of capital cost estimates of the chosen option. Internal confirmation within the Trust that the design brief and sketch plan designs are acceptable and have been frozen subject to subsequent design development during the implementation phase.

Nucleus

9.15 Standardised systems for hospital design, such as Nucleus should be considered for any new developments and phased developments on existing sites. They streamline the design, tendering, construction and commissioning of building for Health Service schemes and offers flexible solutions.

Private finance

9.16 The costs and benefits of any option which uses private financing in any form should where possible be compared with an equivalent option financed conventionally to demonstrate how best value for money is being achieved.(This must be done for all schemes involving leasing).

Planning Permission

9.17 With the removal of Crown Immunity health service bodies and NHS Trusts will have to submit planning applications for all developments in accordance with statutory procedures. Local Authorities are required to charge fees for planning applications.

Risk assessment (Step 6)

9.18 If investment in the preferred option is large or complex, a more rigorous assessment of risks may need to be performed. This may for instance, entail further sensitivity analyses on combinations of cost changes or benefit weights and scores or both.

The preferred option (Step 7)

9.19 Simple statements that investment schemes are affordable and feasible are not sufficient in a Full Business Case. The case must demonstrate, on current resource and market assumptions, that the recommended option can be afforded and how the costs would be met. This should cover both capital and revenue cash flows with at least ten-year projections of NHS Trust balance sheets, showing the impact of new assets, and income and expenditure statements, incorporating capital charges. The sources and yearly incidence of cash should be identified, including that from land sales or private financing.

9.20 Options which make use of the existing capital resources through refurbishment, adaptation or rationalisations should be fully explored. For major investments, alternatives under each of these headings must also be considered: for instance:

In what ways could the option be postponed, accelerated or phased differently?

Can options be decomposed into a number of components which are each in themselves an option?

If options can be broken down into smaller, phased schemes, is each component cost-effective on its own?

9.21 Full assessment of feasibility will include consideration of the practical aspects of any substantial service change (such as a change of use or an associated hospital closure). All cases with substantial manpower implications will need to address issues of recruitment, professional training, accommodation, redeployment or redundancy.

Presentation of the Full Business Case

9.22 The Full Business Case should be presented in the general form outlined in Appendix C, adapted as necessary to reflect the various factors which determine the choice of option. The purpose of the Full Business Case document is to show that the recommended investment:

- accords with strategic goals and objectives to meet customers requirements, and recognises the Trust's competitive position;
- offers best value for money;
- is affordable and feasible; and
- will be properly managed, controlled and evaluated.

9.23 To demonstrate the last of these points, the Full Business case must include:

- A Development Control Plan;
- Proposals for controlling and managing the investment project;
- The strategy to contract for the work;
- A post-project evaluation plan; and,
- A risk management strategy.

The Development Control Plan

9.24 The Development Control Plan (DCP) is a series of maps, drawings and plans showing the existing configuration of buildings, their functional relationship with each other and the stages of site development. The DCP may be revised as a consequence of the Full Business Case being approved, and the plan should be appended to the Full Business Case document.

Project control and management

9.25 It is important that the Full Business Case explains the project management arrangements that show how Trust management has effective control over each project in its capital building programme. The Full Business Case must explain the proposed management control arrangements, including identification of the Project Sponsor and Project Manager, with their time constraints and support arrangements. The reporting arrangements that will be put in place for the project should also be included; for example, how and when the project manager reports to the project sponsor and what the arrangements are for the client to have oversight of the project.

9.26 Table 9.1 lists key aspects of the management arrangements for the project which must be set out in this section of the Full Business Case.

Preliminary Contract Procurement Strategy

9.27 The Full Business Case should provide a preliminary assessment of the contract procurement strategy, which will be reviewed during the implementation phase with the project manager. It will then either be confirmed or amended after more detailed consideration. The following main factors should be considered:

- the availability of in-house resources;
- project size and complexity;

Table 9.1 **Management Arrangements for the Project**

Client

A well defined and organised client that knows what is required to control the capital programme. (The client may often be a group; for example, the NHS Trust Management Team, or clinical team, etc.)

Project Sponsor

This person, who is a named individual representing the client, should have full responsibility and authority of the client for the preparation and implementation of the project. The Sponsor should normally be a senior person within the client organisation with relevant experience and training. If the sponsor does not have the full range of skills necessary for the oversight of the project, independent advice should be obtained to ensure that the Sponsor has a fully informed client capability.

Project Manager

Appointed by the Project Sponsor to implement the scheme in accordance with client specifications and time and cost controls. The Project Manager should have sufficient expertise in the management of construction projects.

Responsibilities

The respective roles and responsibilities of the Client group and individuals, the Project Sponsor and the Project Manager should be outlined.

Communications

Clear lines of communication should be defined covering reporting, authority and approval.

Support

Underlying the arrangements above there should be adequate support and resources ranging from project and administrative personnel to use of information technology (IT) or information systems (IS).

- is affordable and feasible; and
- will be properly managed, controlled and evaluated.

9.22 To demonstrate the last of these points, the Full Business case must include:

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Contracting strategy

9.26 The Full Business Case should consider the contracting strategy in some detail to develop a framework for procurement and explain the following main factors:

- the availability of in-house resources;
- project size and complexity;

- the importance of timescale and the possibility of requiring phased completion;

- the quality and completeness of the design brief and confidence that it will remain unaltered;

- any constraints imposed by the objectives and requirements of the project or by external factors;

- availability of funding.

9.28 Reference must be made to the constraints, requirements and objectives of a scheme, so that the optimum contract strategy can be adopted. The Contracts and Commissions for the NHS estate document (CONCODE) should be referred to, which gives summaries of various procurement options. If a contracting option other than the conventional method is to be pursued (separate design stage followed by lump sum construction contract) then a detailed explanation of the contracting arrangements and reasons should be provided.

9.29 Advice on contract strategy selection can be obtained from:-

- CONCODE "The Contracts and Commissions for the NHS"

- HM Treasury CUP Guidance No.36

- approriate consultancy services

Post-project evaluation

9.30 The purpose of post-project evaluation (PPE) is to improve project appraisal at all stages of a project from the business case through design, management and implementation. It is a process which aims to assist with decision making and project management, and improve the way in which service requirements are met through the capital building programme. It is a learning process and should not be seen as a means of apportioning blame.

9.31 PPE must be conducted as a matter of course for all projects with a works cost in excess of £1 million. The activity is designated as Part III of CAPRICODE. During the Business Case phase (Part I of CAPRICODE), plans must be made for monitoring the progress and completion of projects, and for evaluating the outcome following implementation. The PPE plan should be appended to the Full Business Case document. Guidance on preparing a PPE plan is given in Appendix D. (Exemplar plans are also available from NHS Management Executive: see the Introduction at the beginning of this guide for information on how to obtain these).

Risk management strategy

9.32 Risk and uncertainty will exist for any proposed capital investment. The Full Business Case document must include a risk management strategy. This shows how Trusts plan to minimise risk and what action will be taken if problems

- the importance of timescale and the possibility of requiring phased completion;
- importance and availability of information about the requirements of the scheme and its quality; and,
- availability of funding.

9.27 Reference must be made to the constraints, requirements and objectives of a scheme, so that the optimum contract strategy can be adopted. The Contracts and Commissions for the NHS estate document (CONCODE) should be referred to, which gives summaries of various procurement options. If a contracting option other than the conventional method is to be pursued (separate design stage followed by lump sum construction contract) then a detailed explanation of the contracting arrangements and reasons should be provided.

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Risk management strategy

9.30 Risk and uncertainty will exist for any proposed capital investment. The Full Business Case document must include a risk management strategy. This shows how Trusts plan to minimise risk and what action will be taken if problems do occur. The sensitivity analyses conducted for the Outline Business Case, and developed in more detail for the full case, will make managers aware of the risks associated with the assumptions underlying the recommended option.

9.31 The sensitivity testing conducted for the Outline Business Case (Step 6) and amplified for the Full Business Case should alert managers to the risks associated with the preferred option. It will have highlighted the assumptions to which the robustness of the proposal is most sensitive. There will be risks to the implementation of the project itself (eg, cost overruns, delays), and to the realisation of benefits once the project is completed (eg, such as changes in purchaser strategies or clinical requirements). Plans for a risk management

strategy will need to be developed and presented as part of the Full Business Case. This will require risks and countermeasures to be noted at this stage, so that pre and post-implementation monitoring can be planned for. The kind of questions which should be addressed are:

- What could go wrong?
- How could we stop it happening?
- If something was going wrong, how would we know?
- What would we do about it?

Managing project risk

9.32 Plans to minimise project risks might, for instance, consider the scope for better contractual arrangements, or delaying the project if this reduces important risks, or phasing it in some way. During project planning and implementation, one simple method of containing risks is to keep a risk register. This is a list of all the potential risks to the project that have been identified. It can be started during the Business Case process, and items can be added to it at any time. Risks can then be regularly and systematically reviewed at project management meetings. Procedures to contain the risks that have been identified can be put in place, and items deleted from the register if the risk has passed.

Risks to benefits realisation

9.33 Having developed an understanding of the risks associated with the proposed option, managers will be in a better position to act swiftly if changes to factors affecting key assumptions occur. Risk management strategies need to be presented which address the key risks that have been identified to the realisation of benefits from the proposed investment, and show:

- an understanding of the consequences, if key assumptions about factors such as service demand, performance, cost savings, turn out differently;
- how changes in key factors will be monitored so that changes to assumptions can be spotted before having an impact;
- the actions that can be taken to minimise the impact of changes to assumptions;
- the allocation of responsibility for monitoring risk, for initiating preventive action and for ensuring each identified benefit is realised.

9.34 Finally, the most robust proposals will be those which are by nature inherently low risk. These will generally have built-in flexibility; among their features will be:

- phasing of implementation so that there are break points to review external developments before proceeding with the next stage; and,

- adaptability, so that even if service requirements and the strategic context change substantially the investment continues to deliver a range of benefits.

Outputs produced from Step 9

1. Revised, good quality investment appraisal

2. Detailed proposals with costings

3. Development Control Plan

4. Statement of how the project is to be controlled and managed

5. A contracting strategy

6 A post-project evaluation plan

7 A risk management strategy

8 update CAPRICODE information sheets CAP0 + CAP1

Appendix A Strategic Analysis Techniques

A number of well established techniques are used by business strategy and business planning practitioners. This appendix contains two of the most frequently used.

I Porter's five forces model

Michael Porter's famous model provides a useful framework in which to assess the intensity of competition in an industry. This technique is used widely in the private sector and with modification can also be applied to a health-care market context. Five basic competitive forces are identified: the interaction of these forces determines the state of provider competition and its underlying purchaser environment.

The five forces

The key influences to consider in assessing competition are:

- **The threat of new entrants**

  This is a function of the barriers that exist to impede new entry into an industry. Such barriers can arise from the following main sources:

  - economies of scale
  - capital requirements
  - government policy
  - cost advantages independent of scale (proprietary technology, favourable locations etc).

  In addition to the above, the threat of entry is also influenced by the potential entrant's expectations with regard to the reaction of existing providers.

- **Rivalry amongst providers**

  The degree of rivalry among providers is a function of a number of interacting structural features. Numerous or equally balanced competitors, slow growth, high fixed costs, lack of switching costs, high exit barriers can all serve to increase the intensity of rivalry. Rivalry can manifest itself in a number of forms - price competition, a high rate of service innovation, and increased levels of customer service. Trusts need to understand the implications of developments taking place in other providers.

- **Alternative patterns of health-care provision**

  The presence of effective substitutes to a product or service will influence the provider environment. For example, the increased use of day surgery and the policies towards increased care in the community.

- **The bargaining power of purchasers**

  Purchasers may be able to exert pressure by negotiating for improved services, better quality and lower prices. The power that purchasers hold is a function of a number of factors and is likely to be high when:

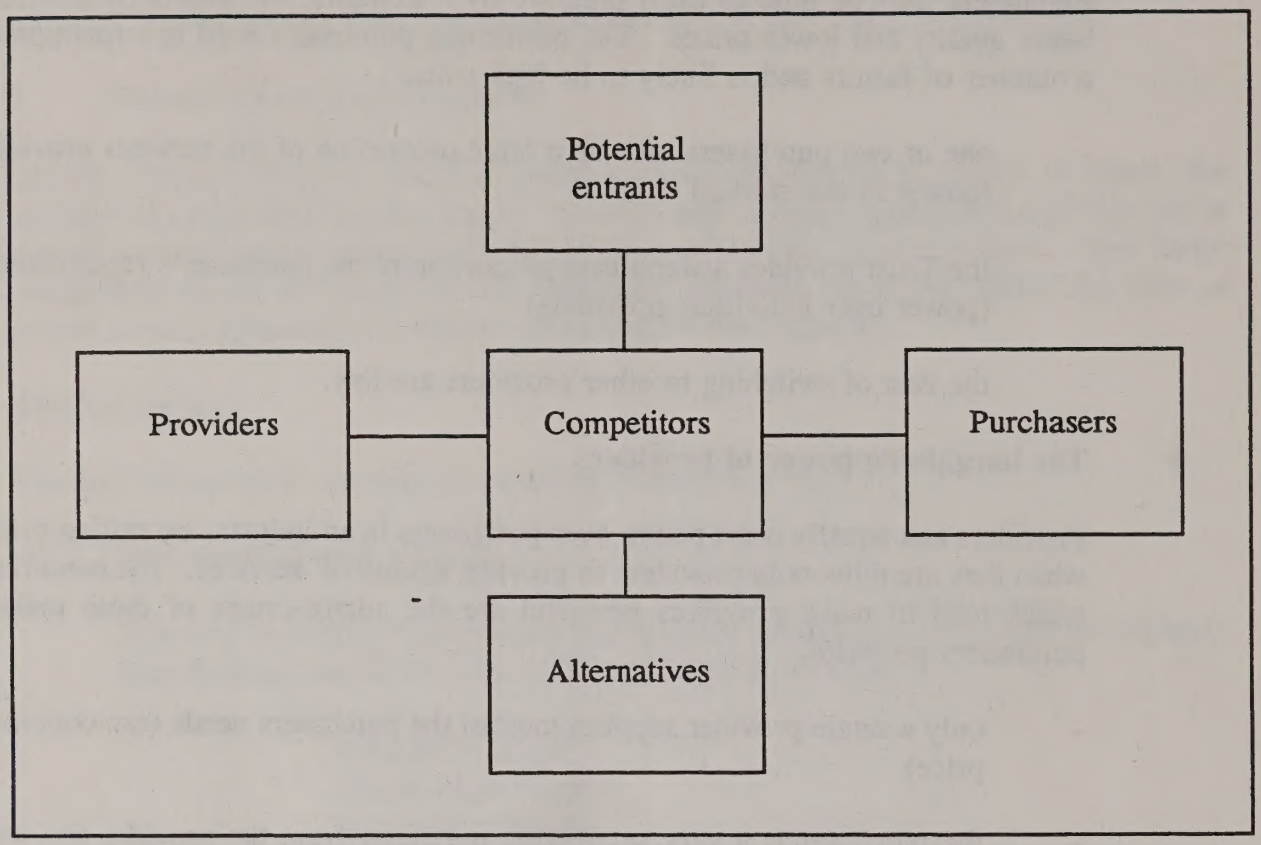
  - one or two purchasers take up a large proportion of the services provided (power in the market)
  - the Trust provides a significant proportion of the purchaser's requirements (power over individual providers)
  - the cost of switching to other providers are low.

- **The bargaining power of providers**

  Providers can equally exert power over purchasers in an industry by raising prices when they are monopoly providers or provide 'exclusive' services. The conditions which tend to make providers powerful are the mirror-image of those making purchasers powerful:

  - only a single provider supplies most of the purchasers needs (can command price)
  - the purchaser is a very small-scale purchaser from the provider and so is price-insensitive
  - switching costs are high.

The five forces discussed above are summarised in the diagram overleaf.



Forces driving competition

II SWOT Analysis

A second technique is widely used already in the NHS. A SWOT analysis (strengths, weaknesses, opportunities, threats) is a technique which may be applied to a business, to assess its market position vis-a-vis its environment. It also facilitates assessment of a company's strategic options, and the key decisions to be made to secure future growth or assessments of any other area of interest.

SWOT analysis is a quick and easy-to-use method of identifying the major options and strategic decisions affecting the future of a company. When used properly it can assist the decision maker in thinking critically about the business, highlighting areas of immediate concern which should be researched in more depth.

SWOT analysis helps find the best match between external or other trends (opportunities and threats) and internal capabilities (strengths and weaknesses). The method is based on the completion of a simple matrix as follows:

Strengths	Weaknesses	INTERNAL
1 2 3 4 etc	1 2 3 4 etc	
Opportunities	**Threats**	**EXTERNAL**
1 2 3 4 etc	1 2 3 4 etc	

How to use it?

Taking each section in turn, the approach should be to list out the features of the provider which fall under each category. These features will generally be at the strategic level (ie market share, growth, competitor profiles etc). A sample SWOT matrix might therefore look as follows:

S	W
- two local purchasers provide 85% of contract income - high quality staff	- high level of staff turnover (20%) - administration overheads high (12%)
O	**T**
- expand service base - increase specialist international private patients to generate income	- possible referral by GPFH's to neighbouring NHS Trust

Appendix B Discounting

Discounting should not be confused with the effects of inflation. It is undertaken to reflect the fact that £1 in, say, one year's time is viewed now as worth less than £1 today. The factor that expresses the precise relationship that makes values at different points in time equivalent is known as the Discount Factor. The discount factor is dependent on the **discount rate** and **time period** ahead being considered.

Algebraically: $$D_n = \frac{1}{(1 + r)^n}$$

where D_n = discount factor
r = discount rate
n = number of years ahead

Net Present Value

The Net Present Value (NPV) method is the best recognised discounting technique, in which all future costs and benefits are discounted to their Present Values. The sum total of the Present Values is the Net Present Value. Net Present Values of costs are more correctly described as Net Present Costs (NPC).

The discount rate used for public sector expenditure is known as the Discount Rate and is set at 6% at the time of writing.

Example 1 illustrates the use of discounting to reflect the present value of a future expenditure over 4 years. Though the net cash flow in both examples is the same (£10.00), the net present value of the cash flows is significantly different (£8.93 compared with £9.47).

Exclusion of capital charges and VAT

Discounting is a means of assessing the **economic** consequences of an investment option. NHS capital charges are **financial** charges. They depend either on the means of financing the investment (interest on debt and a return on Public Dividend Capital) or on the method used in Trust accounts to allow for the declining economic value of assets as they age (depreciation). Discounting takes account of the cost of capital reflected in the capital charges through the discount rate that is applied, and calculates economic (rather than accounting) depreciation over the appraisal period. Accordingly, **capital charges should be excluded** from the net present cost calculations.

In economic appraisal of public investment, taxes must also be excluded since they are a transfer of money from one point in government to another and not a true cost. Hence **value added tax (VAT) should be subtracted from all costs** included in discounted cash flows used to calculated net present costs. (VAT paid by Trusts and not recovered returns money to the Exchequer that has previously been transferred to DH).

EXAMPLE 1

OPTION A	1990/91 Year 0	1991/92 Year 1	1992/93 Year 2	1993/94 Year 3	1994/95 Year 4
Capital	£1.00	£1.00	£1.00	£1.00	£1.00
Revenue	£1.00	£1.00	£1.00	£1.00	£1.00
Total	£2.00	£2.00	£2.00	£2.00	£2.00
Discount Factor	1.0000	0.9434	0.8900	0.8396	0.7921
Present Values	£2.00	£1.89	£1.78	£1.68	£1.58
Sum of Present Values:					
NPV of Costs	£8.93				
Net Costs	£10.00				

OPTION B	1990/91 Year 0	1991/92 Year 1	1992/93 Year 2	1993/94 Year 3	1994/95 Year 4
Capital	£5.00				
Revenue	£1.00	£1.00	£1.00	£1.00	£1.00
Total	£6.00	£1.00	£1.00	£1.00	£1.00
Discount Factor	1.0000	0.9434	0.8900	0.8396	0.7921
Present Values	£6.00	£0.94	£0.89	£0.84	£0.79
Sum of Present Values =					
NPV of Costs	£9.47				
Net Costs	£10.00				

Year 0 is defined as the current year. The discount factor for Year 0 (D_0) is always 1.0.

Option A has a spread of capital expenditure over several years; the value today of expenditure incurred in Year 4 is significantly less. Option B has all of the capital expenditure in the current year. The value today of this expenditure is equal to the expenditure, since it is incurred immediately. Therefore the Net Present Value of the costs of Option A is significantly less than the NPV of the costs of Option B.

Discount factors are presented in Table B1 at the end of the guide.

Assets with Different Lifespans

In options appraisals, discounting is generally required to enable capital and revenue costs to be combined and aggregated in a consistent manner. The appropriate time period over which the discounting should be undertaken is the assumed life of the asset or building. However, if two options have different lifespans, this needs to be reflected in the calculations to enable consistent and valid comparisons to be undertaken.

By annuitizing the discounted cost of the assets over their lifespan and comparing these annual equivalent payments the effects of different lifespans can be accommodated. To compute the equivalent annual cost (EAC) the following steps are required.

1. Set out the phased pattern of capital and revenue payments of the option.

2. Discount the total and sum to calculate the NPV of the option.

3. Apply the appropriate EAC factor to the NPV.

EAC factors are given in Table B1 at the end of the guide, and can be expressed algebraically as:

$$A_n = \frac{r}{(1 - D_n)}$$

where A_n = equivalent annual cost of £1
r = discount rate
D_n = discount factor
n = number of years ahead

Example 2 illustrates the comparison of two options of unequal length. The annual equivalent cost of Option A is £1.68, Option B £2.12. Thus although the net cash flow of Option A is significantly more than Option B, Option A is preferable on the basis of the EAC.

Table B1

DISCOUNT FACTORS, EQUIVALENT ANNUAL COSTS AND PRESENT VALUES OF £1 PER YEAR FOR A DISCOUNT RATE OF 6%

(Base date = year 0)

Years	Discount Factor (= present value of £1)	Equivalent annual cost of £1	Present value of £1 per year	Years	Discount Factor (= present value of £1)	Equivalent annual cost of £1	Present value of £1 per year
1	0.9434	1.0600	0.943	31	0.1643	0.0718	13.929
2	0.8900	0.5454	1.833	32	0.1550	0.0710	14.084
3	0.8396	0.3741	2.673	33	0.1462	0.0703	14.230
4	0.7921	0.2886	3.465	34	0.1379	0.0696	14.368
5	0.7473	0.2374	4.212	35	0.1301	0.0690	14.498
6	0.7050	0.2034	4.917	36	0.1227	0.0684	14.621
7	0.6651	0.1791	5.582	37	0.1158	0.0679	14.737
8	0.6274	0.1610	6.210	38	0.1092	0.0674	14.846
9	0.5919	0.1470	6.802	39	0.1031	0.0669	14.949
10	0.5584	0.1359	7.360	40	0.0972	0.0665	15.046
11	0.5268	0.1268	7.887	41	0.0917	0.0661	15.138
12	0.4970	0.1193	8.384	42	0.0865	0.0657	15.225
13	0.4688	0.1130	8.853	43	0.0816	0.0653	15.306
14	0.4423	0.1076	9.295	44	0.0770	0.0650	15.383
15	0.4173	0.1030	9.712	45	0.0727	0.0647	15.456
16	0.3936	0.0990	10.106	46	0.0685	0.0644	15.524
17	0.3714	0.0954	10.477	47	0.0647	0.0641	15.589
18	0.3503	0.0924	10.828	48	0.0610	0.0639	15.650
19	0.3305	0.0896	11.158	49	0.0575	0.0637	15.708
20	0.3118	0.0872	11.470	50	0.0543	0.0634	15.762
21	0.2942	0.0850	11.764	51	0.0512	0.0632	15.813
22	0.2775	0.0830	12.042	52	0.0483	0.0630	15.861
23	0.2618	0.0813	12.303	53	0.0456	0.0629	15.907
24	0.2470	0.0797	12.550	54	0.0430	0.0627	15.950
25	0.2330	0.0782	12.783	55	0.0406	0.0625	15.991
26	0.2198	0.0769	13.003	56	0.0383	0.0624	16.029
27	0.2074	0.0757	13.211	57	0.0361	0.0622	16.065
28	0.1956	0.0746	13.406	58	0.0341	0.0621	16.099
29	0.1846	0.0736	13.591	59	0.0321	0.0620	16.131
30	0.1741	0.0726	13.765	60	0.0303	0.0619	16.161

EXAMPLE 2

OPTION A	90/91 Year 0	91/92 Year 1	92/93 Year 2	93/94 Year 3	94/95 Year 4	95/96 Year 5	96/97 Year 6	97/98 Year 7
Capital	£1.00	£1.00	£1.00	£1.00	£1.00			
Revenue	£1.00	£1.00	£1.00	£1.00	£1.00	£1.00	£1.00	£1.00
Total	£2.00	£2.00	£2.00	£2.00	£2.00	£1.00	£1.00	£1.00
Discount Factor	1.0000	0.9434	0.8900	0.8396	0.7921	0.7473	0.7050	0.6651
Present Values	£2.00	£1.89	£1.78	£1.68	£1.58	£0.75	£0.71	£0.67
Net Cash Flow			= £13.00					
Sum of Present values = NPV of Costs			= £11.05					
Annualizing Factor for Years 0-7 at 6%			= 1 + 5.5824					
Equivalent Annual Cost		= £1.68						

OPTION B	90/91 Year 0	91/92 Year 1	92/93 Year 2	93/94 Year 3	94/95 Year 4
Capital	£5.00				
Revenue	£1.00	£1.00	£1.00	£1.00	£1.00
Total	£6.00	£1.00	£1.00	£1.00	£1.00
Discount Factor	1.0000	0.9434	0.8900	0.8396	0.7921
Present Values	£6.00	£0.94	£0.89	£0.84	£0.79
Net Cash Flow			= £10.00		
Sum of Present values = NPV of Costs			= £9.47		
Annualizing Factor for Years 0-4 at 6%			= 1 + 3.4651		
Equivalent Annual Cost		= £2.12			

Appendix C The Full Business Case submission

1. Structure

Full Business Case submissions must include the following:

- detailed capital investment appraisal;
- scheme description;
- project management plans:
  - development control plan
  - project management
  - contract strategy
  - post-project evaluation
  - risk management strategy

2. Capital Investment Appraisal

Aim to provide a clear and reasoned presentation of the information and analysis which supports the proposal:

A. Strategic direction

- Identify service development priorities and priorities for improving use of resources as reviewed in Strategic Plans;
- Prepare background information on changes in the pattern of services and use of resources (including the estate) required to implement strategy. Highlight improved use of resources;
- Describe and quantify present catchment population, present level of service activity and resources use (including manpower and property);
- Quote relevant performance indicators and describe condition, functional suitability and utilisation of property;
- Describe the market for services, the competitive position of the Trust and of other service providers;
- Justify assessments of future services and functions required by reference to purchasers requirements, projected catchment population and expected demand for services;
- Indicate any special factors influencing need or priority.

B. Objectives, constraints and benefit criteria

- Review performance of existing services and facilities to identify any surplus capacity and particular targets for improving efficiency and effectiveness;
- Define benefit criteria to be used to assess output of options and the achievement of objectives;
- Establish clear objectives for future services in terms of health-care outputs and use of resources;
- Identify any key constraints (eg timescale, available resources, location) which will affect all options. Avoid unnecessary constraints;
- Objectives and constraints should be defined and, if possible, quantified to assist formulation and evaluation of options;
- Identify any other particular features likely to assist evaluation.

C. Formulation of options

- Identify alternatives for meeting objectives;
- Give clear reasons for early rejection of options;
- Specify options for detailed evaluation by reference to objectives, constraints and benefit criteria;
- Options may or may not involve capital investment.

D. Appraisal of options

- Identify, assess and compare extent and timing of costs and quantifiable financial benefits occurring over the functional life of options including:

  - capital and revenue costs including, where appropriate, the value or cost of assets used. The opportunity cost of property (including land) already in NHS ownership should be included
  - quantifiable financial benefits in the form of income, cost savings in other services, realisable assets etc
  - significant costs and benefits occurring outside the NHS (may be shown separately)
  - use discounted values to assist comparisons

  NB: All costs and quantifiable financial benefits should be dated and reported at constant prices at a specified price level. The cost forms following this Appendix

may be used for assessing scheme costs and if necessary may be adapted for use in assessing project costs.

- Identify and describe all service benefits and outputs over the functional life of options using measured assessments where possible (eg throughput of patients). Project likely performance of options;

- Identify and assess locational/siting aspects including accessibility;

- Identify and assess effects on other patient services, other providers and other health are agencies eg local authority provision of personal social services, voluntary organisations, etc;

- Explain any other factors which may affect choice including environmental impact (visual impact, traffic generation), manpower implications (recruitment, training), timing, etc;

- Test for uncertainty, assess relative importance of particular estimates and assumptions to determine any feasible changes which could overturn the choice of option, and identify trigger values which initiate reappraisal of options.

E. Selection of the preferred option

- Summarise and present the results of the investment appraisal to explain the choice of option. Identify likely improvements in patient services and performance;

- Describe main aspects of proposed scheme selected on the basis of the investment appraisal and for which approval is sought;

- Outline scope, give location, main contents, estimated capital costs and estimated annual running costs;

- Include a map or plan showing location of scheme and relationship to existing facilities and other units,and proposals for estate development/rationalisation including any change of use;

- Describe the plan to realise the benefits of the preferred option;

- Where appropriate, summarise the result of local consultations.

3. Scheme description

A scheme description should be appended to the Full Business Case.

A. General

The main aspects of the scheme should be described to indicate impact on services and use of resources, and to provide a discipline for subsequent planning and design development.

Include the following information where appropriate.

B. Content

- Identify functional content and distribution of beds and services, indicate bed numbers/scale of provision, ad hoc departments etc (Cost Form 2 may be used);
- Identify major specialities, in-patients, out-patients, day patients and short-stay facilities. (Cost Form 2 may be used);
- Identify diagnostic and treatment services and other supporting services departments. (Cost Form 2 may be used).
- Identify major engineering/environmental services and facilities;
- Identify any content that depends on other schemes/phases for its viability;
- List any teaching component.

NB: Where appropriate, departments should be expressed in terms of functional units as defined in the relevant Health Building Note or an indication of space requirements should be given.

NB: Assessment of functional content should take into account the output and capacity of functional departments as described in Health Building Notes. Levels of provision should be determined accordingly.

NB: Proposals for development of staff residential accommodation and investment in facilities for selected support and ancillary services (cleaning and laundry) must be identified and justified separately in the submission.

C. Service implications and benefits

- State proposed changes to existing pattern of services and method of operations in the locality and describe likely benefits;
- Identify proposed property closures, property sales and changes of use;

- Indicate other changes necessary for the effective and efficient operation of services including any upgrading or adaptation of existing facilities;
- Estimate expected throughput of patients in relation to capacity of functional departments;
- Identify any objectives which are not expected to be achieved in full.

D. Location, general siting and proposed solution

- indicate location and general siting proposed for development;
- Indicate building form and location of departments;
- Identify relationships with existing services and other units;
- Describe accessibility to catchment population;
- Highlight possible impediments and constraints on development, eg planning considerations;
- Describe and give reasons for proposed planning/building solution. Where Nucleus is not selected justify its rejection and explain reasons for proposed planing/design solution;
- Outline implications for future use, development/rationalisation of the estate.

E. Capital costs

(Use Cost Form 1)

- Report capital cost, including departmental costs, reasonable on-costs (identifying main elements) and costs of fees and equipment;
- Forecast annual incidence of capital expenditure and confirm that resources will be available within current resource assumptions;
- State the base year prices used to calculate costs, giving index level of pricing;
- State percentage change in capital costs (measured in real terms) needed to trigger a review or lapse of Approval. Trusts should normally expect values to be set within the range + 2½% to + 5%. In any case Approval will lapse if Business Case capital cost increases in real terms by more than 10%.

F. Running costs

- Report revenue costs (annual running costs based on full year of normal operation). Estimates should reflect staffing at (h) below and the known planning/design features;

- State the base year prices used to calculate costs, give index level of pricing where appropriate;

- State net saving or increase on overall revenue budget and confirm that resources will be available within current resource assumptions;

- Identify source of any additional revenue funds required;

- State percentage change in revenue cost (measured in real terms) needed to trigger a review or lapse of Approval. Outposts should normally trigger values to be set within the range of +2½% to +5%. In any case Approval will lapse if Business Case revenue cost increases in real terms by more than 10%.

G. Timing

- Outline programme for planning and development, identify target dates for completion of subsequent CAPRICODE stages and date(s) when services to patients are expected to commence.

H. Staffing

- Report existing and estimated future staff complement and set out redeployment/recruitment implications (staffing costs should be reflected under Running Costs above).

I. Other considerations

- Report any significant consequences of scheme outside the NHS (cost or benefit);

- Identify any expected participation of private firms, voluntary organisations etc in the provision and operation of services.

A statement showing breakdown ad incidence of estimate capital and running costs, reported on Cost Forms 1,2,3,4 and 5 should be included as par of the scheme description. Where appropriate CONCISE 4 outputs may be used for reporting capital costs.

3. Project management plans

The following management and control plans should be appended to the Full Business Case:

- Development control Plan;

- Project management arrangements;
- contract strategy;
- project monitoring and post-project evaluation plans (see Appendix D);
- cash-flow projections;
- Risk management strategy.

SCHEME ..... APPROVAL IN PRINCIPLE
BUDGET COST*

CAPITAL COSTS SUMMARY

Basis of estimating: QSSD tender price index level ..... (Base 19 = 100)*
: PIPSH tender price index level ..... (Base 19 = 100)*

1.	Departmental Cost (from Form 2)	£
2.	On-Costs (from Form 3) (% of Departmental Cost)	£
3.	Works Cost	£
4.	Equipment Cost (from Form 2) (% of Departmental Cost)	£
5.	Fees (from Form 4) (% of Works Cost)	£
6.	Other Costs (from Form 4)	£
7.	AIP COST/BUDGET COST*	£
8.	Proposed Contract Period	.....

9. Forecast Capital Expenditure Profile

Year	Amount £

For use at Stage 1 and Stage 2
* Delete as appropriate.

SCHEME ..... APPROVAL IN PRINCIPLE
BUDGET COST*

CAPITAL COSTS: DEPARTMENTAL COST AND EQUIPMENT COST

Basis of estimating: OSSD tender price index level ..... (Base 19 = 100)*
: PIPSH tender price index level ..... (Base 19 = 100)*

Functional Content	Functional Units/Space Requirements	Accom-modation**	Cost Allowance***	Equipment Cost
			£	£
Departmental Cost and Equipment Cost to Summary (Form 1)			£	£

For use at Stage 1 and Stage 2
* Delete as appropriate.
** Indicate whether functions accommodated in new building (N), existing building adapted for change of use (A), or existing building retaining current use (C).
*** Must be based on or related to DHSS Cost Allowances.

N.B. *Identify separately any proposed additional capital expenditure (extra over cost allowances) to improve specific aspects of scheme performance, e.g. energy saving measures.*

SCHEME ..... APPROVAL IN PRINCIPLE
BUDGET COST*

CAPITAL COSTS: ON-COSTS**

Basis of estimating: QSSD tender price index level ..... (Base 19 = 100)*
: PIPSH tender price index level ..... (Base 19 = 100)*

		Estimated Cost	Percentage of Departmental Cost
			%
1. Communication			
a. Space	£		
b. Lifts	£	£	
2. External Building Works			
a. Drainage	£		
b. Roads, paths, parking	£		
c. Site layout, walls, fencing, gates	£		
d. Builders work for engineering services outside buildings	£	£	
3. External Engineering Works			
a. Steam, condensate, heating, hot water and gas supply mains	£		
b. Cold water mains and storage	£		
c. Electricity mains, sub-stations, stand-by generating plant	£		
d. Calorifiers and associated plant	£		
e. Miscellaneous services	£	£	
4. Auxiliary Buildings		£	
5. Abnormals			
a. Building	£		
b. Engineering	£	£	
Total On-Costs to Summary (Form 1)		£	£

For use at Stage 1 and Stage 2
* Delete as appropriate
** Must be based on Scheme specific assessments/measurements; full breakdown of on-costs may not be available at Stage 1.

N.B. *Identify separately any proposed additional capital expenditure to improve specific aspects of scheme performance, e.g. energy saving measures.*

SCHEME ..... APPROVAL IN PRINCIPLE BUDGET COST*

CAPITAL COSTS: FEES AND OTHER COSTS**

Basis of estimating: QSSD tender price index level ..... (Base 19 = 100)*
: PIPSH tender price index level ..... (Base 19 = 100)*

		Percentage of Works Cost %
1. Fees (including in-house costs)		
a. Architects	£	
b. Structural Engineers	£	
c. Mechanical Engineers	£	
d. Electrical Engineers	£	
e. Quantity Surveyors	£	
f. Project Managers	£	
g. Others	£ _____	
Total fees to Summary (Form 1)	£ _____	

2. Other Costs***
(specify items)

_____

Other Costs to Summary (Form 1) £ _____

For use at Stage 1 and Stage 2.
* Delete as appropriate.
** Full breakdown of fees may not be available at Stage 1.
*** Identify any preliminary works, enabling works and direct contracts.

SCHEME ..... APPROVAL IN PRINCIPLE
BUDGET COST*

REVENUE COSTS

Based on pay and prices at .....

Expected building opening date .....

Staff costs (to be related to staffing estimates) £

Non-staff costs £ _____

Gross cost of scheme £

Less consequential savings from closures £ _____

Net cost of scheme £ _____

Basis of estimate of non-staff costs

Forecast Revenue expenditure profile	Year	Amount £

For use at Stage 1 and Stage 2
* Delete as appropriate

Appendix D Post Project Evaluation

The guidance in this Appendix seeks to introduce at an early stage the steps that need to be taken to monitor and evaluate the performance of NHS capital projects. Post project evaluation (also known as post implementation review) is already identified as and dealt with fully in Part III of CAPRICODE.

The purpose of post-project evaluation (PPE) is to improve project appraisal, design, management and implementation. It is a learning process and should not be seen as a means of allocating blame.

It is a requirement of the Management Executive that projects with a works cost in excess of £1 million should be evaluated as a matter of course.

The PPE process may be divided into three main stages:

- Stage 1: plan and cost the scope of the PPE exercise at the project appraisal stage (ie during the preparation of Business Cases).
- Stage 2: monitor progress and evaluate the project outputs on completion of construction, including phased work.
- Stage 3: review the outcomes (service aspects) of the project once it is operational.

The evaluation of the project should be couched in terms of its objectives. The objectives of the project should relate directly to the business objectives of the unit.

The evaluation should also attempt to show what would have happened if the project had not been undertaken. In other words, what is the counterfactual? This enquiry may seem somewhat speculative, but it is important to recall the unchanged original situation (the "do nothing" option), and to consider how it would have been likely to develop over the period in which the project was undertaken. This counterfactual will act as a benchmark against which the performance of the project may be measured.

It is recommended that the project framework approach should be adopted for evaluations of NHS capital projects. The project framework is a simple matrix listing project objectives against indicators which are capable of measuring change. Risks to the project are also evaluated and discussed.

It is not proposed that evaluations should be unduly time-consuming or expensive. Performance indicators already exist that can be utilised. Otherwise simple indicators may be developed for the specific project.

Evaluations need to be put in the hands of Chief Executives and other key decision-makers. This is particularly important where management action can be taken to remedy shortcomings, such as releasing latent project benefits.

The full business case should include a plan of action concerning aspects of the project that are to be evaluated and the stages at which this is to take place. Approval in Principle will not be given unless post project evaluation has been planned in advance.

A straightforward method of planning a project evaluation is to use a project framework. A basic framework, in the form of a matrix, completed with examples is given in Table D1.

Table D1

The Project Framework

OBJECTIVES	PERFORMANCE INDICATORS	METHOD OF MEASUREMENT	ASSUMPTIONS/RISKS
Policy/Business Aims			
Health of the Nation Patients Charter Care in community Purchasers' needs	HON Targets Charter targets Targets for strategy Increase activity	National data and norms	Purchasers revenue Policies change Targets change
Project Objectives			
Reduce mortality Increase activity Increase effectiveness Reduce output costs	Mortality by specialty Activity by specialty Outcome indicators Output prices	Local data and norms Clinical data Patient survey Finance database	Management objectives change Savings not achieved
Outputs			
Building Equipment	Building phases	Time and cost monitoring	Time overruns
Inputs			
Capital Revenue Personnel	Target capital cost Target running cost Planned staffing mix	Time and cost Finance database Personnel database	Cost overruns Savings not achieved Staff recruitment

APPENDIX E - THE CONCISE SYSTEM

1. THE CONCISE SYSTEM

1.1 CONCISE (Computerised National Capital Intelligence Service and Exchange) is an integrated health building information system designed for managers at policy-making and operational levels with key information on schemes in the NHS's building programme. The system was developed jointly by the Department and the CONCISE Users's Group (formerly the NHS Regional Quantity Surveyors Association Computer Group) and is intended to provide the quality of information essential to decision makers. CONCISE comprises a number of discrete suites of programs each of which is self-contained but there are links between various suites.

1.2 CONCISE 1 holds primary information on individual health building schemes for the planning stages up to letting of the contract.

1.3 CONCISE 2 holds dynamic information to assist in the management and performance monitoring of schemes currently under construction or awaiting resolution of the final account.

1.4 CONCISE 3 holds analyses of the build-up of the capital costs of a library of actual schemes. Users are able to rebase scheme costs and compare the incidence and pattern of costs over a number of different schemes. The objective is to provide a capital cost database and processing system which will enable Health Authorities and Trusts to improve the effectiveness of their cost planning for health building design.

1.5 CONCISE 4 is an application for assisting the rapid appraisal of development options during the early stages of planning. It covers the preparation of early estimates of capital costs of schemes options and their comparison and appraisal. CONCISE 4 facilitates the systematic calculation of On-Costs, the preparation, comparison and appraisal of running costs, and the generation of development/rationalisation options. It is able to produce directly the AIP submission forms required by Capricode.

1.6 The CONCISE 4 database now represents the Department's current comprehensive guide to the authorised Departmental Cost Allowances (DCAs) and the Equipment Cost Allowance (ECAs). The database is updated when changes to the authorised pricing levels are promulgated.

Trust Name:_____ Stge: Capital / Revenue

Contact Name and Address for enquires:_____ Tel No:_____

Date of Completion:_____ Does this amend a previous form for the same period: YES/NO

for schemes with a total capital cost of $1m or over

		Year 0 19__/19__			Year 1 19__/19__			Year 2 19__/19__			Year 3 19__/19__			Year 4 19__/19__			Year 5 19__/19__		
				Revenue			Revenue			Revenue			Revenue			Revenue			Revenue
Scheme Name	Site Name	Capital	Source	Conseq	Capital	Source	Conseq	Capital	Source	Conseq	Capital	Source	Conseq	Capital	Source	Conseq	Capital	Source	Conseq

aggregate of all schemes with an individual capital cost of below $1m

	Year 0 19__/19__			Year 1 19__/19__			Year 2 19__/19__			Year 3 19__/19__			Year 4 19__/19__			Year 5 19__/19__		
			Revenue			Revenue			Revenue			Revenue			Revenue			Revenue
Site Name	Capital		Conseq	Capital		Conseq	Capital		Conseq	Capital		Conseq	Capital		Conseq	Capital		Conseq

Revenue Consequences: Is the change in revenue expenditure following the capital project +ve is increase -ve is saving?